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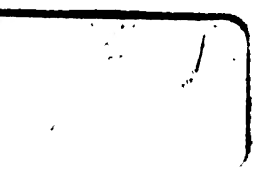
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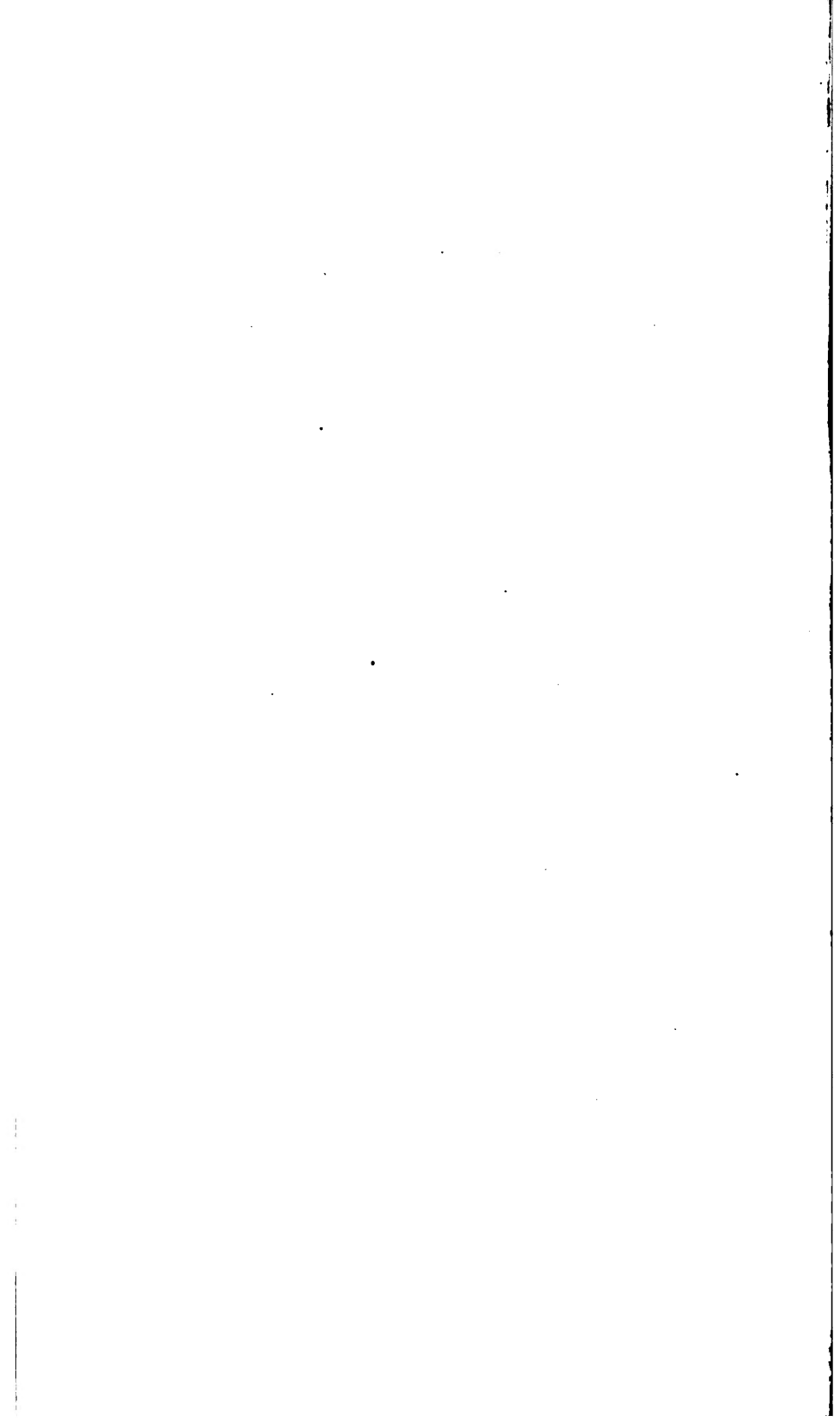
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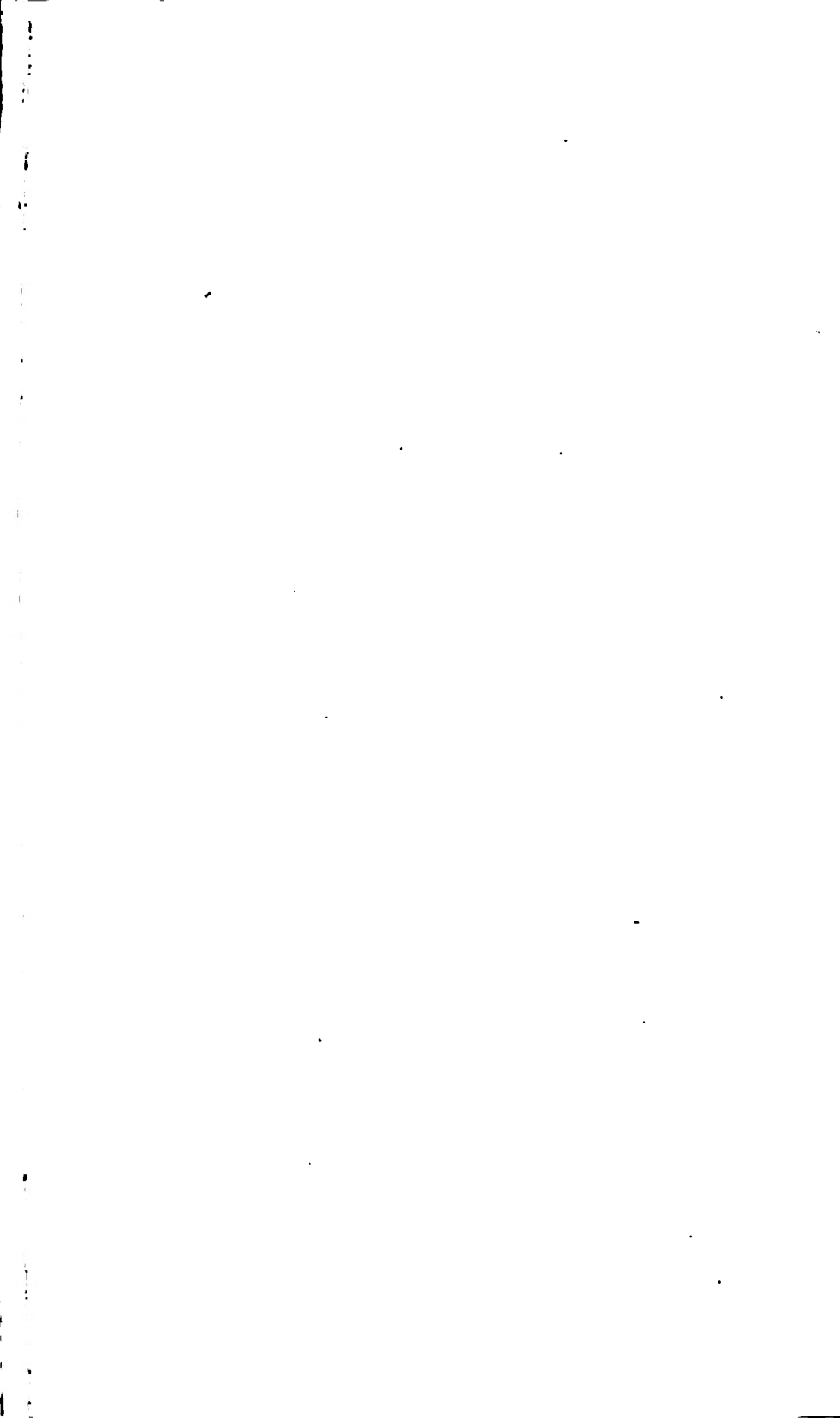


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1845

REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY.

New Orleans:

J. O. NIXON, STATE PRINTER.

1866.

12th St. STG

1870

1870

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1870

Louisiana State University and Agricultural
and Mechanical College.

REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

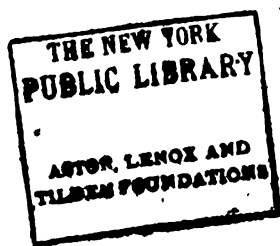
Louisiana State Seminary of Learning

AND MILITARY ACADEMY.

New Orleans:
J. O. NIXON, STATE PRINTER.

1866.

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REPORT OF BOARD OF SUPERVISORS.

STATE OF LOUISIANA,

EXECUTIVE DEPARTMENT,

NEW ORLEANS, January 31, 1866.

To the President of the Senate:

I transmit herewith the Annual Report of the Board of Supervisors of the Seminary of Learning and Military Academy, together with accompanying documents referred to.

J. MADISON WELLS,

Governor of Louisiana.

To the two Houses of the General Assembly of Louisiana:

The Board of Supervisors of "THE LOUISIANA STATE SEMINARY OF LEARNING AND MILITARY ACADEMY," in compliance with the requirement on it to do so, contained in the fourteenth section, Act of March 18, 1858, respectfully report that the exercises of the institution having been closed since May 1, 1863, the buildings of it occupied alternately by Confederate and Federal soldiers, the Board of Supervisors in abeyance, and the terms of service of the individual members expired, the Governor of the State, under commissions bearing date July 17, 1865, appointed Michael Ryan, Henry Boyce, W. L. Sanford, Gervais Baillie, Meredith Colhoun, Bartholomew Egan, J. G. Taliaferro, W. W. Whittington, Smith Gordon. J. A.

Smith, Lewis E. Texada and George Masson Graham, as Members of the Board, and, as ex-officio President thereof, convened them to meet in Alexandria on Saturday, September 2, 1865, attending in person to organize the Board, when, in addition to the President, Messrs. Ryan, Sanford, Baillie, Egan, Whittington, Smith, Texada and Graham attended and were qualified.

After discussion and deliberation, there being found conveniently at hand sufficient *good material* for the construction of an excellent Academic Board, it was determined to fill the original five Chairs at once, and to open the institution for the reception of pupils on Monday, October 2.

From among a number of applicants, the Board, with entire unanimity, elected by ballot:

JOHN A. A. WEST to the Chair of Mathematics and Natural and Experimental Philosophy;

RICHARD M. VENABLE to the Chair of Engineering, Drawing and Architecture;

EDWARD CUNNINGHAM to the Chair of Chemistry, Mineralogy and Geology;

DAVID F. BOYD formerly filling the same, to the Chair of English and Ancient Languages and Literature,

J. P. BELLIER to the Chair of Modern Languages and Literature.

Professor BOYD was elected Superintendent and Treasurer, with an addition of \$750, to his salary of \$2000, as a Professor, at which low sum, per annum, the salary of each of the Professors was fixed, for the present, except that of the Modern Languages, which was put at \$1500.

The public being apprized of all this through the medium of circulars and newspaper advertisements as extensively as the small means at the command of the Board would admit of. The Institution was opened on Monday 2d, of October 1865, by Professors Boyd, West, and Bellier with four *Matriculates*, viz: Tighlman, G. Grimes, of Avoyelles, T. Taylor Sanford, Kenneth C. Sanford, and Melville Bennett, of Rapides. Professor Venable reported for duty on the 18th October. Prof Cunningham having entered into previous engagements elsewhere, will not be able to do so until the opening of the session next autumn, in the meantime he draws no salary.

It had been foreseen that there would probably be no classes formed for Professors Cunningham and Venable during the present session, but it was deemed advisable to have them *in position* in case there should be need for their services in their respective Departments, and in the meantime they could be very usefully and profitably employed in the preparation of their Departments, and in assisting the other Professors, particularly the Professor of Ancient Languages, whose class it was apprehended would be very full, and to whose collegiate duties, were super-added those of Superintendent and Treasurer, sufficient of themselves at any time to engross the time and attention of one person, but particularly arduous and absorbing in the opening and organizing an Institution such as this under circumstances enforcing the necessity of practicing the most *skillful* economy, and to which the Board found itself constrained by the narrowness of its finances to attach a most inadequate compensation, and also in teaching and enforcing the discipline of the school. To these duties Professor Venable is devoting himself with the most earnest zeal, judicious enthusiasm, and marked profit and benefit to the Institution. This is equally true in respect to each of the other Professors, among whom the utmost harmony, cordiality, and zeal for the best interests of the Institution, prevail. The Board has the greatest reason to congratulate itself and the people of the State on its most fortunate and happy selection of the Academic Board. The high-toned bearing, and the manly and gentlemanly deportment which both by precept and example they instil into the students, and the habits of study and application which they inculcate and encourage by visiting and assisting the students in their rooms at night, is of itself worth more than their salaries. A simple incident which the Board deems worthy to be mentioned in this connection, speaks volumes in illustration of their beneficial influence. A member of this Board had occasion to send one of his sons, whom he had not the means to place in the Seminary, over to it on an errand, on his return he said to his father "The Seminary is very different from any other school. Why, at other schools when a stranger goes there the boys generally try to see how many pranks and tricks they can play on him, but over at the Seminary every body is as polite as they can be."

The number of matriculates gradually increased to thirty-five on the

6th of December, at which number it remained until the close of the year. Since then, the number has increased to fifty-five on this 22d day of January, and a small gradual increase is still looked for. Many letters from parents and guardians express their desire, but their want of means, to patronize the institution. And yet it is probably the cheapest school of its grade in all the Southern States, the price being but \$30 a month for tuition, board, washing, fuel, lights, rent of furniture, surgeon's and library fees. In the enhanced price of *everything*, however, it is found on trial that the expense has been fixed at too low rate, and that at this time the maintenance of each student is costing the Seminary \$10 a month more than the student pays. With one hundred students ~~this~~ deficit would be overcome. The price cannot now be changed for the remainder of the present session, which closes on the 30th of June next, but will have to be increased slightly for the next session, which will commence on the 1st of October.

Such is "the condition of the Seminary" at this time.

In regard to receipts, disbursements and expenses, the Board found, when convened on the 2d of September last, that the Governor, fully impressed with the value and importance of this institution to the people of the State, whose property it is, had, with most laudable zeal and judgment in its behalf, appointed Prof. D. F. Boyd "acting superintendent" on the 19th of July last, with instructions to employ a balance which was found to the credit of the Seminary on the books of the Bank of Louisiana, and which the Governor drew therefrom and placed in Prof. Boyd's hands, amounting to \$1,738 55, to the cleaning and renovation of the buildings, which the Board found Prof. Boyd engaged at with all his characteristic energy and zeal, but having to struggle with immense difficulties in the utter prostration of the labor system of the country, and the *exorbitant prices of everything*.

In his report to the Board on the 2d of September, he estimated a deficit of \$16,261 45 in the amount necessary to place the buildings in such state of repair, and provide such indispensable furnishings as would admit of the school being opened at all at the desired time.

The Board found that including the then current calendar year (1855), there was due by the State to the Institution the amount of interest, on

the Foundation Fund; of \$8,200 per annum for the four years of 1862, '63 '64 and '65, making the sum of \$32,800. The Board, therefore, requested and authorized the Governor to endeavor to effect a loan of \$20,000 for the use of the Institution on a pledge of the interest due by the State. Prof. Boyd returned to New Orleans with the Governor, who, with great personal exertion, succeeded in effecting loans from the Canal Bank and Citizens' Bank amounting to \$15,000 in Federal currency, by his most judicious disbursement of which, Prof. Boyd was enabled to meet the wishes of the Board and the public, in opening the school on the 2d day of October; for his personal exertions, energy and endurance in effecting which, the Board of Supervisors and the people of the State owe him a profound debt of gratitude.

But, there remains much to be done of a preservative character both in regard to the buildings and the grounds, the latter of which are entirely unenclosed (except a small portion immediately around the buildings, the enclosure of which is rapidly going to decay,) and the timber on it, becoming every day more valuable, liable to constant depredation. The wood work of the buildings all needs painting badly, and one, of the only two, Professor's houses is untenable from a rapidly spreading dry rot in the floors, and other damages inflicted on it during the war.

The Superintendent estimates for necessary repairs to buildings,	
outhouses and fences, remaining undone.....	\$10,000
For purchase of philosophical and chemical apparatus, engineering instruments, library.....	
	10,000
Total.....	\$20,000

The building having been sacked of everything during the war, library, models, instruments, specimens, apparatus, which had, for the most part, been collected in Europe in 1859 and '60 by that gallant and lamented officer, the late Professor of chemistry and commandant of Cadets in this Institution, Colonel Frank W. Smith, whose services and great loss to this Institution this Board desires to commemorate and record, there remained nothing but the bare walls when Prof. Boyd took possession of it as acting Superintendent. *Everything* has to be renewed, and it is hoped that the General Assembly will find it consonant with a wise and liberal

economy to furnish the Board of Supervisors with the means of doing so. This Institution belongs to the people of the State, and it is respectfully and with all due deference suggested that it should be the *pride*, as it is considered the *duty*, of their Representatives and Senators to foster, protect and encourage it, confident as the Board is that with judicious care on the part of the General Assembly, it will prove of incalculable value to the State.

This appropriation of \$20,000 asked from the General Assembly is separate and distinct from the \$32,800 of accumulated interest due the Institution on its *Foundation Fund*, vested by the Constitution in the hands of the State, every dollar of which will be needed to repay the loan effected through the exertions of Governor Wells, of \$15,000 and interest on it, — to pay the Professors' salaries, the deficit in the expenses of the present session, and provide for opening the next session. The annexed tabular statement marked A, shows at a glance the amount of receipts, from all sources, and disbursements, making an aggregate of \$22,371 73, of which there remained on hand on the 31st of December only \$1,798 42½, which will not only be absorbed, but leave a deficit of expenses at the close of the session of \$2,277 69. In looking at the *nominal* large amount of money received and disbursed, the Board beg the members of the General Assembly not to lose sight of the fact that it is in a badly depreciated currency, and that the whole country is run wild with extravagance in price of labor, materials, provisions, freights and everything else.

By the 6th section of Act 228, of March 18, 1858, the Board is authorized to "elect a Secretary, who shall record, attest and preserve their proceedings," but made no provision for the *payment* of such an officer. Heretofore, for the most part, it has been the custom to assign that duty to some subordinate employee of the Institution, with the small addition of \$200 a year to his other compensation, and to, very improperly, pay it out of the funds of the Institution. The Board respectfully suggests that it is incumbent on the *General Assembly* to pay this salary, as a legitimate part of the "Expenses of the Board of Supervisors" provided for in section 8th of Act 96, of March 7th, 1860; and as it is found desirable not to have the Board's Secretary connected with the Seminary, and as \$200 a year is of itself too small a sum to command the services of a competent

person, the Board respectfully but *most urgently* asks the General Assembly to increase the sum fixed in section 8th of Act 98, of March 7th, 1860, to \$500, which sum the Board deems requisite to cover the salary of a competent Secretary, and its own necessary expenses.

With this Report the Board hands to the General Assembly a copy of the Treasurer's account of disbursements up to the 31st of December, 1865, marked B.

A copy of the Superintendent's Property Return, showing every, the minutest item, or article purchased, used, disposed of, and on hand, up to the 31st of December, 1865, marked C.

A Return showing: 1st. The name, chair and salary of each member of the Academic Board; 2d. The name, date of matriculation, and parish of each Cadet; 3d. The number of subordinate employees and the monthly pay of each, marked D.

In conclusion, the Board of Supervisors respectfully suggest and recommend to the General Assembly, as soon as the finances of the State shall be in a condition to justify it, to confide to this Institution the geological and mineralogical survey of the State, to be made by the Professor and students of that School during the annual vacations of the Institution, a mode of accomplishing a very desirable result which commends itself with great force to this Board in the paramount advantage which it presents of making so large a number of the young men of the State thoroughly and intimately acquainted with the inhabitants of every section of it, and with the geography, topography, geology and mineralogical resources of the whole of it.

Ere the finances of the State shall be in a condition to authorize it, it is confidently hoped that the school of geology and mineralogy in this Institution will be fully qualified to undertake the work.

All which, with a cordial and confident recommendation of this Institution of Learning to the fostering care of the General Assembly, to the patronage and encouragement of the people of the State, whose property it is, and fervently and reverently to the protection of Divine Providence, is most respectfully submitted by the Board of Supervisors of "The Louisiana State Seminary of Learning and Military Academy."

G. MASSON GRAHAM,

Vice-President of the Board,

January 22, 1865.

**THE LOUISIANA STATE SEMINARY IN ACCOUNT CURRENT WITH D. F. BOYD, TREASURER,
DURING THE YEAR 1865.**

10

<i>Dr.</i>		1865.	<i>Cr.</i>
1865.			
Dec. 31.	To amount paid for repairs, as per accompanying abstract and vouchers.....		July 21. By \$4,829 33, drawn from the Bank of Louisiana on the draft of Gov. Wells, in the notes of that Bank, exchanged for United States Treasury notes Aug. 7th @ at 38 cents \$ 1,738 55
Dec. 31.	To amount paid for expenses, as per accompanying abstract and vouchers.....	\$ 7,603 02 5-6	
Dec. 31.	To amount paid for Board of Supervisors, as per accompanying abstract and vouchers.....	12,300 27 5-6	Sept. 22. By amount drawn from the Canal Bank, on the draft of Gov. Wells, based on Auditor's certificate.....
Dec. 31.	To amount paid for contingencies, as per accompanying abstract and vouchers.....	70 00	Oct. 9. By amount forwarded by Gov. Wells, through Ang. Jarreau, Esq., drawn from the Citizens' Bank on Auditor's certificate.....
Dec. 31.	Balance.....	600 00 1,798 42 1-3	Nov. 15. By amount forwarded by Gov. Wells, through Prof. West, drawn from the Citizens' Bank on Auditor's certificate.....
			Dec. 22. By amount realized from the sale of 1,866 lbs. of damaged cotton found in the Seminary Building.....
			Dec. 31. By fees of 35 Cadets.....
		\$22,371 73	\$22,371 73

D. F. BOYD, Treasurer.

REPORT

Of Officers, Cadets and Employees of the Louisiana State Seminary of
Learning and Military Academy, Jan. 20, 1886.

ACADEMIC BOARD.

	Salary per annum
DAVID F. BOYD, Professor of Ancient Languages and English Literature, (Superintendent and Treasurer,) - - -	\$2,750 00
RICHARD M. VENABLE, Professor of Engineering, Architecture and Drawing, - - - - -	2,000 00
*EDWARD CUNNINGHAM, Professor of Chemistry, Mineralogy and Geology, - - - - -	2,000 00
JOHN A. A. WEST, Professor of Mathematics and Natural and Experimental Philosophy, - - - - -	2,000 00
JEAN PIERRE BELLIER, Professor of Modern Languages, -	1,500 00
AMERICUS COCKERILLE, M. D., Acting Surgeon.—(Fees, \$1 per month from each Cadet.)	

* Professor CUNNINGHAM will not assume the duties of his Chair until the 1st of September next.

CADETS.

No.	Name.	Place of Residence.	Date of Matriculation.	Remarks.
1	Tighlman G. Grimes,	Avoyelles Parish.	Oct. 2, 1885.	
2	Thornton T. Sanford,	Rapides "	"	
3	Kenneth C. Sanford,	Rapides "	"	Died Nov.
4	Melville Bennett,	Rapides "	"	18, 1885.

CADETS.

No.	Name.	Residence.	Date of Matriculation.	Remarks.
5	Joseph F. Sollobellas,	Rapides Parish.	Oct. 4, 1865.	
6	Frank R. Kittredge,	Assumption "	6,	
7	John A. Reggio,	Natchitoches "	6,	
8	Joseph T. Airey,	Natchitoches "	6,	
9	David T. Stafford,	Rapides "	9,	
10	Leroy Stafford,	" "	9,	
11	George L. Walmsley,	Natchitoches "	11,	
12	Willie French,	Alexandria.	11,	
13	Norton R. Roberts,	Rapides "	16,	
14	Pierre N. Deslouches,	Natchitoches "	16,	
15	Albert Deslouches,	" "	16,	
16	Walter C. Johnson,	Alexandria	16,	{ Dismissed Oct. 28, 1865.
17	Charlie K. Johnson,	" "	16,	
18	Charles E. Bringham,	Rapides "	18,	
19	Arthur F. Sharp,	Morehouse "	28,	
20	Cherubusco Newton,	" "	28,	
21	William J. Avriett,	" "	28,	
22	Charles T. Compton,	Avoyelles "	Nov. 5,	
23	Arthur W. Connolly,	Terrebonne "	10,	
24	Henry A. McCollam,	" "	10,	
25	Edward David,	Rapides "	12,	
26	Zachary T. Fuller,	Bossier "	13,	
27	Daniel R. Carroll,	New Orleans.	14,	
28	Marin H. Brosset,	Natchitoches "	18,	
29	Robert J. Barrow,	Pointe Coupee "	21,	
30	Charles L. Johnson,	Rapides "	21,	
31	Elihu A. Fulford,	Jackson	23,	
32	Jefferson W. Gordon,	Rapides "	27,	
33	Laurent Dupre,	Opelousas.	28,	
34	George K. Pratt,	" "	28,	
35	George Hopkins,	New Orleans	Dec. 6,	
36	James W. Tucker,	Natchitoches "	Jan. 2, 1866.	
37	Calahill M. Robertson,	Rapides "	3,	
38	Robert P. Hunter,	Baton Rouge "	3,	
39	Pleasant H. Davidson,	Rapides "	3,	
40	Oran Dorsett,	" "	3,	
41	Eugene V. H. Weems.	" "	3,	
42	Mayo S. Duke,	Avoyelles "	6,	
43	Henry Grush,	New Orleans	6,	
44	Charles D. Stuart,	" "	6,	
45	Septime Fortier,	St. James "	6,	
46	Charlie H. Pugh,	Assumption "	8,	
47	Thomas Pugh,	" "	8,	
48	James G. Flint,	Rapides "	8,	
49	Edward W. Pugh,	Assumption "	8,	
50	Robert U. Nichols,	" "	8,	
51	John Rausdell,	Rapides "	14,	
52	Sam. Henaire,	" "	17,	
53	Guilbert Lacour,	" "	17,	
54	Oscar Lacour.	" "	17,	

EMPLOYEES.

One Steward.....	\$ 50 per month.
One Bugler.....	25 "
Two Cooks.....	55 "
One Baker and Mess Hall Servant.....	30 "
Two Mess Hall Servants.....	30 "
Three Servants in Seminary Building.....	60 "
Two Washerwomen.....	24 "
One Woodchopper.....	15 "
One Teamster.....	18 "
One Gardener.....	20 "
One Secretary to the Board of Supervisors.....	200 per annum.

D. F. BOYD, Superintendent.

ABSTRACT OF PAYMENTS

MADE BY D. F. BOYD, TREASURER OF THE LOUISIANA SEMINARY, DURING THE YEAR 1866.

Voucher No.	TO WHOM PAID.	Date of Pay- ment.	ON WHAT ACCOUNT.										REMARKS.
			Repairs.	Expenses.		Board of Support.		Cont'g't Exp'nse.		Total amt paid.			
			Dols.	Cts.	Dols.	Cts.	D.	Cts.	Dls.	Cts.	Dols.	Cts.	
1	S. K. Johnson.....	July 29, 1865.	2	50							2	50	
2	H. Hymen.....	Aug. 21, 1865	4	00							4	00	
3	M. Liso.....	"	10	50							10	50	
4	Henry St. John.....	"	18	00							18	00	
5	E. Wiel.....	"	38	50							38	50	
6	E. B. Boisset.....	24	10	75							10	75	
7	H. G. Stetson.....	"			30	75					30	75	
8	Kearney, Blois & Co.....	"	69	00							69	00	
9	S. K. Johnson.....	25	4	00							4	00	
10	H. Lindosa.....	"	46	10							46	10	
11	Slark, Stauffer & Co.....	"	141	40							141	40	
12	A. Raschal.....	"			22	00					22	00	
13	Murphy & Orvald.....	26	10	00							10	00	
14	Steamer Louis d'Or.....	28	62	75							62	75	
15	G. Wiel.....	31	1	25	53	44					54	69	
16	D. Sullivan.....	"	12	00							12	00	
17	J. David.....	Sept. 3, 1865.	11	25							11	25	
18	S. K. Johnson.....	4			15	75					15	75	
19	Bartholomew Egan.....	"					25	00			25	00	
20	B. Jarreau, jr.....	"	35	00							35	00	
21	Pay roll of laborers.....	"	20	85							20	85	
22	Pay roll of wood cutters.....	5			20	11					20	11	
23	Pay roll of laborers.....	"	5	25							5	25	
24	D. Sullivan.....	6	39	50							39	50	
25	W. H. Haughay.....	7					45	00			45	00	

ABSTRACT OF PAYMENTS—Continued.

36 G. Mason Graham.....	"	300 00	1 00	300 00
37 Swinford.....	9	7 00	1 00	8 00
38 Henry St. John.....	10	2 75		2 75
39 F. Avery.....	11	59 50		59 50
30 Murphy & Oswald.....	12	31 50	12 00	43 50
31 McDonald & Rollins.....	"	2 00	9 00	11 00
32 William Wells.....	"	30 00		30 00
33 U. S. Sub. Dep't.....	13	17 25		17 25
34 F. Avery.....	16	5 50		5 50
35 S. Adams.....	"	9 00		9 00
36 P. Molony.....	18	23 72		23 72
37 J. B. Jarreau.....	"	7 50		7 50
38 Slack, Stauffer & Co.....	22	409 90		409 90
39 D. F. Boyd.....	"	427 77		427 77
40 Sol. Carmel.....	"	58 25		58 25
41 Pay roll of laborers.....	"	54 55		54 55
42 T. L. White.....	"	700 27		700 27
43 Swarbrick & Co.....	"	1,508 99		2,061 49
44 A. M. Holbrook.....	23	30 00	30 00	30 00
45 G. F. Weiss & Co.....	"	25 00	25 00	25 00
46 John Handerson.....	"	9 00	9 00	9 00
47 City Hotel.....	"	25 50		25 50
48 C. Flint & Jones.....	"	72 00	1,006 00	1,078 00
49 E. F. Mioton.....	"	598 35		598 35
50 James Gonegal.....	"	186 87		186 87
51 Str. B. L. Hodge.....	25	46 90	947 76	994 66
52 F. Shumak.....	27	23 50	23 50	23 50
53 B. Jarreau.....	30	45 08		45 08
54 B. Jarreau.....	"	47 23 1/2		47 23 1/2
55 D. F. Boyd.....	"	16 25		16 25
56 D. F. Boyd.....	"	22 50	3 50	26 00

ABSTRACT OF PAYMENTS—Continued.

Voucher. No. of	TO WHOM PAID.	Date of Pay- ment.	ON WHAT ACCOUNT.						REMARKS.	
			Repairs.	Expenses.		Board supper.	Condu- itment.	Total amount paid.		
			Dols. Cts.	Dols. Cts.	D. C.	D. C.	Dols. Cts.			
57	E. Jarreau.	Sept. 30, '65.	31 49						31 49	
58	Daniel Webster.	"	27 80						27 80	
59	D. F. Boyd.	"	213 88						213 88	
60	Major.	Oct. 2, 1865.	6 50						6 50	
61	Angelina Flores.	"	8 00	24 00					32 00	
62	A. J. Vails.	"		9 00					9 00	
63	J. W. Atwell.	3	3 00						3 00	
64	W. A. Seymour.	"		2 76					2 76	
65	John Handerson.	4		7 00					7 00	
66	Samuel Jones.	"		1 50					1 50	
67	F. Ferrand.	"		3 00					3 00	
68	Samuel Jones.	"		8 50					8 50	
69	Thos. Robertson.	"	15 00						15 00	
70	O. Flint & Jones.	5		769 00					769 00	
71	G. W. Stafford.	9		238 41					238 41	
72	Louis Burley & H. Abel.	"		30 00					30 00	
73	S. K. Johnson.	"		2 00					2 00	
74	B. F. Simmons.	"	8 00						8 00	
75	Dr. A. Cockerelle.	10		20 00					20 00	
76	J. M. Jackson.	"		3 00					3 00	
77	J. W. Sparrocks.	"	92 50						92 50	
78	Geo. W. Parker.	"	144 27						144 27	
79	Wm. Burk.	"	7 38						7 38	
80	F. Avery.	11	9 95						9 95	
81	G. W. Swarbrick & Co.	12	375 50						375 50	

ABSTRACT OF PAYMENTS—Continued.

82	G. W. Swarbrick & Co.	Oct. 12, 1865.	.....	273 25	.....	273 25
83	Lewis Abadie & Co.	"	.....	30 20	.....	30 20
84	J. J. Bedford.	15	.....	100 00	.....	100 00
85	C. Flint & Jones.	"	.....	992 50	.....	992 50
86	J. M. Jackson.	16	.....	20 00	.....	20 00
87	P. F. Kerrigan.	18	106 50	.....	.....	106 50
88	Edward Burke.	"	18 86	.....	.....	18 86
89	Wm. Waters.	19	150 00	.....	.....	150 00
90	T. N. Cole.	21	.....	500 00	.....	500 00
91	John Rives.	"	3 00	.....	.....	3 00
92	J. B. Jarreau.	22	.....	10 15	.....	10 15
93	C. Flint & Jones.	24	.....	125 00	.....	125 00
94	Wm. Lacroix.	25	.....	17 85	.....	17 85
95	J. David.	30	10 00	253 65	.....	253 65
96	B. Jarreau.	31	.....	28 94	.....	28 94
97	B. Jarreau.	21	23 10	.....	.....	23 10
98	B. Jarreau.	31	.....	21 25	.....	21 25
99	J. P. Bellier.	"	.....	125 00	.....	125 00
100	J. A. A. West.	"	.....	166 66	.....	166 66
101	D. F. Boyd.	"	.....	229 16½	.....	229 16½
102	Richard M. Venable.	"	.....	72 32	.....	72 32
103	Henry St. John.	"	.....	23 50	.....	23 50
104	Pay roll of hired men.	Oct. & Nov'r.	127 00	154 75	.....	281 75
105	Pay roll of employees.	"	73 12	75 58½	.....	148 70½
106	Lewis Abadie.	Oct. 31, 1865	.....	88 98	.....	88 98
107	F. J. Avery.	Nov. 2	20 80	.....	.....	20 80
108	Wm. C. Harris.	4	90 00	.....	.....	90 00
109	G. Masson Graham.	6	200 00	.....	.....	200 00
110	Wm. Carson.	8	.....	15 00	.....	15 00
111	Joseph Mahuis.	"	.....	3 50	.....	3 50
112	G. W. Swarbrick & Co.	7	85 70	.....	.....	85 70

ABSTRACT OF PAYMENTS—Continued.

No. of Voucher.	TO WHOM PAID.	Date of Pay- ment.	ON WHAT ACCOUNT.						REMARKS.
			Repairs.	Expenses.	Board Supervisors.	Contin- gent Ex- penses	Total amount paid.		
								Dolla. Cts.	
		Nov. 8, 1865,		102 00				102 00	
113	T. L. White.	12	54 42					54 42	
114	G. W. Stafford.	13	5 00	5 00				10 00	
115	James Graham.	"		140 00				140 00	
116	Steamer Navigator	"						42 25	
117	John Otis.	16	42 25					42 25	
118	Julius Levis.	17	2 00					2 00	
119	Mrs. Jeremiah Mulcahy.	19		10 00				10 00	
120	Thos. O'Donnell.	20		85 30				85 30	
121	W. S. Albright.	23		50 60				50 60	
122	T. B. Durham.	"		21 62½				21 62½	
123	W. S. Albright.	"		50 10				50 10	
124	Henry M. Rogers.	24		7 00				7 00	
125	S. K. Johnson.	"		21 50				21 50	
126	S. K. Johnson.	21		28 00				28 00	
127	E. Wied.	24	19 80	88 17				107 97	
128	E. R. Boiesat.	"	1 50	71 50				71 50	
129	Joseph Bonillotte.	"		92 04				92 04	
130	Mrs. M. L. Cockerille.	25	15 00					15 00	
131	Abraham Morris.	"		9 00				9 00	
132	Edmund Neely.	27	245 00	7 00				252 00	
133	Dr. A. Cockerille.	"	21 65	1 10				22 75	
134	B. Jarreau.	30	2 30	2 00				4 30	
135	B. Jarreau.	"		3 50				3 50	
136	Miss L. Jarreau.	"							
137	J. C. Miller.	"	7 75					7 75	

ABSTRACT OF PAYMENTS—Continued.

138	Murphy & Ovald	Nov. 30, 1865.	67 00	.....	.....	67 00
139	B. Jarreau	"	31 65	46 53½	.....	78 18½
140	J. A. A. West	"	.....	166 06	.....	166 06
141	D. F. Boyd	"	.....	239 16½	.....	239 16½
142	Dr. A. Cockerille	"	.....	55 00	.....	55 00
143	J. P. Bellier	"	.....	135 00	.....	135 00
144	Richard M. Venable	"	.....	168 66	.....	168 66
145	Steamer Caddo	"	.....	49 08	.....	49 08
146	D. F. Boyd	"	.....	10 00	.....	10 00
147	J. David	"	2 15	17 55	.....	19 70
148	Pay Roll of employees	Nov'r	265 51	167 65	.....	423 16
149	Pay roll of hired men	Oct. & Nov.	471 70	118 99	.....	590 69
150	J. David	Nov. 30, 1865	24 50	.....	.....	24 50
151	A. M. Connell	"	149 24	.....	.....	149 24
152	Swarbrick & Co.	"	144 46	239 96	.....	384 42
153	B. Jarreau	"	50 00	.....	.....	50 00
154	B. F. Purley	Dec. 6, 1865	11 25	.....	.....	11 25
155	B. F. Purley	"	.....	131 22	.....	131 22
156	Lewis Abadie & Co.	7	.....	2 50	.....	2 50
157	David Huey	9	.....	77 91½	.....	77 91½
158	Pay roll of employees	Nov. & Dec.	175 63½	9 60	.....	185 23½
159	F. Ferrand	Dec. 12, 1865	5 00	.....	.....	5 00
160	J. C. Miller	"	.....	5 00	.....	5 00
161	John Handlin	16	.....	4 50	.....	4 50
162	G. N. Botton	18	.....	4 10	.....	4 10
163	Charles Evans	19	.....	8 00	.....	8 00
164	John Handlin	"	.....	.....	.....	.....
165	Patrick O'Shee	21	17 50	.....	.....	17 50
166	John Handlin	22	.....	4 00	.....	4 00
167	Southern Star	26	.....	12 00	.....	12 00
168	New Orleans Bee	"	.....	18 00	.....	18 00

Old account ordered to be paid by the Board of Supervisors—resolution Sep. 4, 1865.

ABSTRACT OF PAYMENTS—Continued.

No. of Voucher.	TO WHOM PAID.	Date of Pay- ment.	ON WHEAT ACCOUNT.										REMARKS.
			Repairs.	Expenses.		Board of Super- visors.		Cont'g't Exp'tise	Total am't paid.				
			Dols. Cts.	Dols. Cts.	Dols. Cts.	D.	C.	Dia. Cts.	Dols. Cts.	Dols. Cts.			
169	New Orleans Times.....	Dec. 26, 1865		12 00							12 00		
170	True Delta Office.....	27		12 00							12 00		
171	Office of the Crescent.....	"		12 00							12 00		
172	John Handlin.....	28		6 50							6 50		
173	Office of the Picayune.....	28		12 00							12 00		
174	Lewis Abadie & Co.....	30		140 04							140 04		
175	Dr. A. Cockerille.....	31		34 00							34 00		
176	John Pierre Bellier.....	"		125 00							125 00		
177	J. Pierre Bellier.....	"		24 75							24 75		
178	Edw. Weil.....	"	63 85	420 50							484 35		
179	B. Jarreau.....	"	20 60	8 50							29 10		
180	D. F. Boyd.....	"		209 16½							209 16½		
181	Pay roll of employees.....	December.	62 59	76 08							138 67		
182	J. A. A. West.....	31		99 94							99 94		
183	Richard M. Venable.....	"		106 27							106 27		
184	Pay roll of employees.....	December.	160 50	148 89½							309 39½		
185	Webb & Avery.....	31	3 00	176 78							179 78		
186	Sol. Carnal.....	"	9 00								9 00		
187	G. G. Bloodges.....	"		5 00							5 00		
			7603 02½	12,300 27½		70 00	600 00				20,573 30½		

D. F. BOYD, Treasurer.

Return of Property belonging to Louisiana State Seminary of Learning and Military Academy for Year ending Dec. 31, 1865.

ROOM FURNITURE.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
<i>Bedding.</i>								
Blankets—pairs of.....		72		72				72
Bed Covers.....		112		112				112
Mattresses.....		72		72				72
Pillows.....		72		72	1			71
Pillow Slips.....		146		146	1			145
Sheets.....		300		300	3			297
Straps.....		144		144				144
<i>Miscellaneous.</i>								
Andirons—pairs of.....		48		48				48
Brooms.....		84		84	15			69
Blacking.....		144		144	41			103
Blacking Brushes.....		72		72				72
Buckets—water.....		78		78				78
Chairs.....		204		204				204
Cocoa Dippers.....		61		61	1			60
Clothes Presses.....	9			9				9
Clothes Bags.....		36		36		25		11
Chamber Pots.....		2		2				2
Class Benches.....			23	23				23
Deaks.....		1	1	2				2
Foot Tubs.....		48		48				48
Mirrors.....		24		24	7			17
Shovels.....		48		48	1			47
Spittoons.....		6		6				6
Slop Tubs.....		39		39				39
Toilet Soap—boxes.....		4		4	1			3½
Tongs—pairs of.....		48		48	1			47
Towels.....		300		300				300
Tumblers.....								
Tables—walnut.....	5			5				5
Wash Stands.....		48		48				48
Wash Basins.....		48		48				48
<i>Lights.</i>								
Brushes—lamp chimney.....		2		2				2
Chimneys—A.....		72		72	18			54
Chimneys—B.....		24		24	8			16
Candle Sticks.....		12		12				12
Candles—boxes.....		2		2	½			1½
Coal Oil—barrels.....		2		2	1			1

Return of Seminary Property---Continued.

ROOM FURNITURE.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
Lamps—hall.....		3		3				3
Lamps—M. S.....		36		36				36
Lamps—station.....		7		7				7
Lamps—large globe and chimney.		1		1				1
Lamp Trimmers.....		2		2				2
Lanterns.....		3		3				3
Lanterns—dark.....		1		1				1
Wicks—A.....	144			144	57			87
Wicks—B.....		72		72	58			14
Chimney Brasses—lamp.....		2		2				2
Matches—boxes.....	468			468	107			361
BOOKS.								
Anth. Ain.'s Dictionary—Latin.....		11		11		9		2
Analytical Mechanics.....	7			7				7
Analytical Geometry—Church's.....	5			5				5
Abecedaire—French.....		36		36				36
Arithmetic—Davie's Universal.....	1	40		41		27		14
Arithmetic—Davie's Elementary.....		25		25		11		14
Algebra—Bourdon.....	1	31		32		16		16
Caesar—Latin.....		16		16		13		3
Cicero—Latin.....	23			23				23
Church's Calculus.....	12			12				12
Colloquial Phrases—French.....		48		48		32		16
Chemistry, Elements of—Gilbert.....	1			1				1
Demosthenes—Greek.....	9			9				9
Dictionary, Liddell & S.—Greek.....		2		2				2
Dictionary—Webster's Standard.....		96		96		21		75
English Grammar—Butler's.....		37		37		26		11
English Grammar—Fowler's.....	5			5				5
English Grammar—Smith's.....		22		22		12		10
Euripides—Greek.....	24			24				24
French Grammar.....		36		36		35		1
French Teacher—Pinney.....		11		11		11		
French Reader—Pinney.....		12		12				12
French Element. Reader—Pinney.....		1		1				1
First Lessons—Quackenbos.....	13	28		41				41
Greek Lessons—Anthon.....	29			29				29
Greek Prosody—Anthon.....	17			17				17
Greek and Eng. Dict.—Groves.....	1			1				1
Greek Prep's and Cases of Nouns.....	13			13				13
Greek Reader—Owens.....		16		16				16
Geography.....		48		48		37		11
Herodotus—Greek.....	24			24				24

Return of Seminary Property---Continued.

Books.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
Anth. Jacob's Greek Reader.....	18	...	...	18	...	...	...	18
Latin Exercises—Andrews.....	35	17	...	52	...	26	...	26
Latin Prosody—Andrews.....	21	...	...	21	...	...	...	21
Latin Grammar—And. & Stadts.....	2	33	...	35	...	25	...	10
Latin Grammar—Adams & Gould.....	14	...	...	14	...	...	...	14
Latin Reader—Andrews.....	4	21	...	25	...	15	...	10
Latin Grammar—Harrison.....	15	...	...	15	...	...	...	15
Latin Dict.—Kaltschmidt's.....	9	...	...	9	...	2	...	7
Livii Opera.....	16	...	...	16	...	...	...	16
Legendre—Davies.....	20	13	...	33	...	8	...	25
Mairs' Syntax.....	1	...	...	1	...	...	...	1
Philosophy—Bartels.....	9	...	...	9	...	...	...	9
P. Virgilio Opera.....	10	...	...	10	...	...	...	10
Rhetoric—Quackenbos.....	...	11	...	11	...	...	...	11
Spherical Astronomy—Bart.....	7	...	...	7	...	...	...	7
Synthetic Mechanics—Bart.....	7	...	...	7	...	...	...	7
Surveying—Davies.....	...	6	...	6	...	...	...	6
Spanish Teacher—Butler.....	...	2	...	2	...	...	...	2
Tacitus—Latin.....	2	...	...	2	...	...	...	2
Tooke's Pantheon.....	...	11	...	11	...	...	...	11
Telemaque—French.....	10	...	...	10	...	...	...	10
Willard's United States.....	2	18	...	20	...	...	...	20
Xenophon—Greek.....	11	...	...	11	...	...	...	11
Greek Grammar, Ele.—Kuhner's.....	1	...	...	1	...	...	...	1
STATIONERY.								
Brushes—copy press.....	...	1	...	1	...	...	...	1
Blank Books—4 qrs.....	...	...	...	...	...	...	...	...
Blank Books—3 qrs.....	...	4	...	4	...	...	...	4
Blank Books—2 qrs.....	...	6	...	6	...	...	...	4
Blank Books—1 qr.....	...	20	...	20	...	...	...	4
Copying Presses.....	...	1	...	1	...	...	...	1
Copy Letter Book.....	...	3	...	3	...	...	...	1
Chalk Crayons—boxes.....	8	24	...	24	3	...	...	21
Envelopes, Letter—packs.....	...	108	...	108	...	47	...	61
Envelopes, Legal—packs.....	...	10	...	10	5	...	...	5
Ink, Copying—bottles.....	...	3	...	3	...	...	...	3
Ink, Writing—bottles.....	...	75½	...	75½	...	14½	...	61
Ink Stands.....	...	63	...	63	...	43	...	20
India Rubber Bands.....	...	12	...	12	4	...	...	12
Mucilage—vials.....	...	12	...	12	½	...	...	11½
Paper, Blotting—qrs.....	...	1	...	1	...	...	...	1
Paper, Cap—qrs.....	250	...	...	250	...	88	...	162
Paper, Letter—qrs.....	251	...	...	251	...	71	...	180

Return of Seminary Property---Continued.

STATIONERY.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
Paper, P. O.—qrs.....	3	3		3				3
Paper, Plain—qrs.....	4	4		4	4			3
Paper Cutters.....	3	3		3				3
Pencils—Lead.....	288	288		288		74		214
Penholders.....	60	60		60		34		26
Pass Books.....	144	144		144		50		94
Rulers—gutta percha.....	2	2		2				2
Rulers—wood.....	6	6		6				6
Records—8 qrs.....	2	2		2				2
Registers—Cadet.....	1	1		1				1
Steel Pens.....	828	828		828				828
Slates.....	96	96		96		44		52
Slate Pencils—boxes.....	10	10		10		2		8
Wetting Cups.....	1	1		1				1
Indelible Ink—vials.....	8	8		8	4			4
Oil Paper—sheets.....	12	12		12				12
COMMISSARIAT.								
Butter Bowls.....	12	12		12	2			10
Basting Spoons.....	2	2		2				2
Basting Forks.....	1	1		1				1
Cups and Saucers.....	120	120		120	3			117
Cups and Saucers—small.....	12	12		12				12
Castors—complete sets.....	12	12		12				12
Carvers—pairs.....	6	6		6				6
Coffee Urns.....	2	2		2				2
Demijohns.....	2	2		2				2
Dishes.....	36	36		36				36
Dishes—deep.....	12	12		12				12
Forks.....	120	120		120	2			118
Jars—large.....	3	3		3				3
Jars—small.....	4	4		4				4
Knives.....	120	120		120				120
Mustard Spoons—wood.....	24	24		24				24
Pitchers—molasses.....	12	12		12				12
Pitchers—milk.....	12	12		12				12
Pitchers—plain.....	12	12		12				12
Plates.....	140	140		140				140
Pie Plates—tin.....	24	24		24				24
Pans—tin.....	24	24		24				24
Soup Tureens.....	1	1		1				1
Soup Ladles.....	2	2		2				2
Salt Cellars.....	24	24		24				24
Spoons—table.....	144	144		144				144

Return of Seminary Property---Continued.

COMMISSARIAT.	On hand.	Received by purchase.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
Spoons--tea.....		144	144				144
Sugar Bowls.....		12	12	1			11
Tumblers.....		216	216	4			212
Tumbler Drinkers.....		1	1				1
Tin Boxes for Coffee--large.....		2	2				2
Tea Boxes--large.....		1	1				1
Waiters.....		1	1				1
Butcher Knives.....		4	4				4
Biscuit Rollers.....		1	1				1
Bakers' Strainers.....		1	1				1
Cooking Pots.....		4	4				4
Coffee Mill--Lee's.....		2	2				2
Coffee Drippers--large.....		1	1				1
Coffee Greaques.....		4	4				4
Graters.....		1	1				1
Meat Cutters.....		1	1				1
Meat Saws.....		1	1				1
Ovens.....		1	1				1
Pots.....							
Skillets and Lids.....		1	1				1
Stoves and Fixtures--Charter Oak.....		2	2				2
Sifters.....		2	2				2
Steak Pommels--wood.....		1	1				1
Trays.....		1	1				1
Trays--bread.....		6	6				6
Apples, dried--lbs.....		210	210				210
Beef, fresh--lbs.....		4296½	4296½	4254½			42
Beef, salt--bbls.....		3	3				3
Bacon--lbs.....		541½	541½	293½			247
Bread, hard--bbls.....		4	4	4			
Beans--bbls.....		4 5-6	4 5-6	1½			3½
Butter--kegs.....		4½	4½	4			½
Crackers, soda--bbls.....		5	5	1½			3½
Coffee--sacks.....		2	2	1 6-7			1-7
Cloves--lbs.....		1	1	½			½
Cinnamon--lbs.....		1	1	½			½
Currants--lbs.....		90	90	5			85
Cabbage--heads.....		32	32	32			
Chickens.....		28	28	28			
Ducks.....		88	88	88			
Eggs--doz.....		31	31	26			5
Flour--bbls.....		14	14	13			1
Gumbo--bottles.....		12	12	5			7

Return of Seminary Property---Continued.

COMMISSARIAT.	On hand.	Received by purchase.	Total to be accounted for.	Expended.	Issued to Cadets.	Lost.	Total remaining on hand.
Ginger—lbs.....	3	3	14				11
Hams—lbs.....	103	103	43				60
Hops—lbs.....	24	24	24				
Hominy, large—bbls.....	1	1					1
Hominy, small—bbls.....	1	1					1
Krout.....							
Lard—kegs.....	81-10	81-10	43-5				34
Meal—bushels.....	365-6	365-6	365-6				
Molasses—bbls.....	3	3	14				11
Mustard, K'y—boxes.....	11-6	11-6	11-6				
Milk, fresh—gallons.....	20	20	20				
Milk, condensed—cans.....	24	24	4				20
Mutton—lbs.....	41	41	41				
Nutmegs—oz.....	12	12	94				24
Oil, olive—bottles.....	12	12	4				14
Onions—bushels.....	24	24	21-6				4
Pork, fresh—lbs.....	360	360	360				
Pork, salt—bbls.....	51-10	51-10	21-10				3
Potatoes, Irish—bbls.....	10	10	7				3
Potatoes, sweet—bushels.....	274	274	214				6
Pickles—bbls.....	1	1	4				4
Peaches, dried—lbs.....	96	96	53				45
Pepper, black—boxes.....	1	1	4				4
Pepper, cayenne—vials.....	12	12	9				3
Pumpkins.....	112	112	57				65
Rice—bbls.....	3	3	14				14
Sugar—lbs.....	4298	4298	667				3631
Salt—sacks.....	4	4	1				3
Sauce, tomato—cases.....	2	2	4				14
Sauce, pepper—boxes.....	2	2	1-6				15-6
Tea—lbs.....	10	10	4				94
Turkeys.....	6	6	6				
Turnips—bushels.....	4	4	24				14
Vinegar—bbls.....	1	1	4				4
Vegetables, mixed—lbs.....							
Vermicelli—boxes.....	2	2	4				14
Venison—lbs.....	142	142	127				15
Whisky—gallons.....	2	2	2				
Yeast Powders—boxes.....	48	48	24				24
Axes.....	18	18	4				14
Axe handles.....	18	18	4				14
Alum—lbs.....	2	2					2
Aprons—for cooks.....	2	2					2

Return of Seminary Property---Continued.

COMMISSARIAT.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Lost.	Total remaining on hand.
Brushes—crumb		2		2			2
Brushes—scrub		44		44	15		29
Cash box—Tin		1		1			1
Caps—for cooks		2		2			2
Concentrated Lye—cans		54		54	28		26
Charcoal—bushels		2		2	2		
Copperas—lbs		2		2			2
Dish Baskets		2		2			2
Indigo—lbs		10		10			10
Lampblack—lbs		4		4			4
Measures		2		2			2
Needles—packing		1		1			1
Needles—shoemakers		1		1			1
Rat Killer—box		1		1	1		
Scales—spring		1		1			1
Scales—platform		1		1			1
Sponges		19		19	10		9
Soap, N. O.—lbs		7		7	3		4
Soap, soft—lbs		209½		209½	209½		1½
Starch—boxes		3		3			
Soda Powders—papers		4		4	4		
Tallow—lbs		10		10	10		
Tables	20	2	19	41			41
Wash Basins—tin, large		1		1			1
Molasses Gates		2		2			2
TRANSPORTATION.							
Ambulances		1		1			1
Ambulance covers		1		1			1
Brushes—horse		1		1			1
Bridles							
Carts		1		1			1
Carry Combs		1		1			1
Harness—single sets		1		1			1
Harness—double sets		2		2			2
Mules		4		4	2		2
Wagons	1			1			1
FORAGE.							
Corn—lbs		5024		5024	4821½		202½
Hay—Bales		5½		5½	5½		
Oats—bushels		18½		18½	18½		
MEDICINES.							
Blue Mass—ounces		2		2	1		1½
Calomel—ounces		1		1			1

Return of Seminary Property---Continued.

MEDICINES.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Lost.	Total remaining on hand.
Carb. Soda—lbs.		2		2			2
Chloride Lime—jars.		3		3	2		1
Dover's Powders—ounces.		2		2			1½
Ipecac, powdered—ounces.		2		2			2
Landanum—ounces.		4		4			4
Morphine—drachms.		1		1			1
Muriatic Acid—vials.		1		1			1
Nitre, Sweet Spirits of—pints.		1		1			1
Opium, powdered—ounces.		1		1			1
Ointment—blister.		1		1			1
Paregoric—ounces.		8		8			8
Quinine—ounces.		2		2	1½		½
MISCELLANEOUS.							
Bagles.		1		1			1
Bench Screws.		1		1			1
Brushes.		2		2			2
Brushes—dust.		2		2			2
Brushes—hand.		3		3	1		2
Brushes—long handled.		1		1			1
Brushes—cob web.		2		2			2
Brushes—whitewash.		1		1			1
Brooms—hair.		1		1			1
Buckets—tin.		2		2			2
Buckets—well.		1		1			1
Bagging—yds.		77		77	77		
Butts—doz.		7½		7½	8½		½
Blind Staples—lbs.		1		1			1
Back flaps.		12		12	6		6
Brick—fire proof.		5000		5000	4700		300
Brick—common.		2450		2450	2450		
Burnt Umber.		2		2	2		
Black Boards.		6		6			6
Clocks.		1		1			1
Cold Chisels.		1		1			1
Copper—sheets.		1		1	1		
Cement—bls.		2		2	2		
Crape, English—yds.		2½		2½	2½		
Crome Yellow—lbs.		3		3			3
Copal Varnish—gallons.		1		1			1
Columns, 7 inch, iron.		4		4	4		
Columns, 5 inch, iron.		8		8	8		
Chain Bolts.		6		6			6
Clamps for doors.		1		1			1

Return of Seminary Property--Continued,

MISCELLANEOUS:	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Lost.	Total remaining on hand.
Clothes lines—lbs.....		19		19			19
Clothes pins.....		100		100			100
Clothes Baskets, large willow.....		2		2			2
Door Knobs—doz.....		44		44			44
Eseutcheons, P. W. Keyhole—doz.....		48		48	24		24
Frow Wedges.....		6		6			6
Feather Dusters.....		2		2			2
Files, mill saw.....		1		1			1
Faucets, metal.....		2		2			2
Flooring, dressed.....		2404		2404			2404
Grindstones.....		1		1			1
Glass—boxes.....		49		49	38		11
Glue—lbs.....		12		12	11½		½
Glaziers' paints—papers.....		6		6	5		1
Glass lines—lbs.....		2		2			2
Hoes and Handles.....		6		6			6
Hatchets.....		3		3			3
Hair—bus.....		1		1	1		
Hinges—pairs.....		3		3	3		
Hinges, strap—prs.....		1		1			1
Hooks, awning—doz.....		4		4			4
Iron Jack chains—doz.....		6		6	4½		1½
Japanned Rings—doz.....		4 7-12		4 7-12			4 7-12
Knobs, Mahogany—gross.....		1		1			1
Knobs, PW.....							
Knobs, Wardrobe—gross.....		34		34			34
Locks, door.....							
Lock Keys, brass—doz.....		24		24			24
Locks, Desk.....		1		1			1
Locks, sliding door, PW.....		2		2	1		1
Locks, B mortise—doz.....		5 2-12		5 2-12	5 2-12		
Locks, mortise door—doz.....							
Locks, rabbitted.....		1		1	1		
Lowell—yds.....		37		37	37		
Laths.....		350		350	350		
Lime—bbls.....		12		12	11		1
Lumber—feet.....		10783		10783	8283		2500
Nails, 8d, finishing—kegs.....		1		1	1		
Nails, 8d, plain—kegs.....		1		1			1
Nails, 10d—kegs.....		3		3	1		2
Nails, 6d—kegs.....		1		1	1		
Nails, 3d—kegs.....		1		1	1		
Nails, slaters.....		10		10	10		

Return of Seminary Property---Continued.

MISCELLANEOUS.	On hand.	Received by purchase.	Fabricated.	Total to be accounted for.	Expended.	Lost.	Total remaining on hand.
Oil Cloth-yds.....		4		4			4
Plaster-bbls.....		2		2	1		1
Oil Cans.....		2		2			2
Pat. Brads-papers.....		18		18	6		12
Pump fixtures-sets.....		1		1			1
Padlocks.....		6		6			6
Patent dryer-lbs.....		10		10			10
Rakes and Handles.....		6		6			6
Rope, hair.....		1		1			1
Sash tools.....		2		2			2
Shovels, short handled.....		8		8			8
Shovels, long handled.....		1		1			1
Spades.....		1		1			1
Saws, X-cut.....		1		1			1
Saws, wood.....		1		1			1
Screws-gross.....		17 1-6		17 1-6	6 1/2		8 1/2
Spring bolts-doz.....		1		1	1		1
Solder-lbs.....		10		10	10		
Slate-squares.....		7		7	7		
Spanish Whiting-lbs.....		1		1	1		
Spikes-lbs.....		10		10	10		
Sand Paper-quires.....		6		6	1		5
Screw Eyes-doz.....		4 1/2		4 1/2	25-6		1 1/2
Sash Pulleys-doz.....		1		1			1
Sash Cord-lbs.....		14 1/2		14 1/2	4 1/2		10
Sheet Iron-squares.....		2		2			2
Sod Irons-pairs.....		6		6			6
Tiles.....		12		12	12		
Turpentine-Gals.....		5		5	5		
Tin-boxes.....		4		4	4		
Ventilators.....		30		30	30		
Washing Machines.....		1		1			1
Wringing Machines.....		1		1			1
Washboards.....		5		5			5
White Lead.....		300		300	300		
Clapboards.....	6770		6770	6770			6770

D. F. BOYD, Superintendent.

1866
REPORT

OF THE

BOARD OF SUPERVISORS

AND

SUPERINTENDENT

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY,

TO THE

LEGISLATURE OF THE STATE OF LOUISIANA.

NEW ORLEANS:

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1867.

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VIA 351

REPORT OF BOARD OF SUPERVISORS.

To the Honorable Senate and House of Representatives of Louisiana, in General Assembly convened :

The Board of Supervisors of the Louisiana State Seminary of Learning and Military Academy respectfully submit herewith, in furtherance of the 14th section of the Act of March 18th, 1858, the report of Prof. D. F. Boyd, the Superintendent of the institution, which embraces, as required by that Act, a "full account of the disbursements during the past year, and a general statement of the condition and prospects of the Seminary." From a careful inspection of the school, on various occasions, through the Executive Committee, assisted by other members of the Board, the Supervisors are gratified to express their concurrence in the views of the Superintendent as to the eminent capacity and zeal of the Faculty, the general assiduity and proficiency of the cadets, and the consequent success of the institution in diffusing the light of sound learning. From the statistics herewith submitted as Document E, however, it is but too apparent that the advantages of the Seminary are not yet sufficiently known to our people to command that amount of private patronage which is necessary to render it a self-supporting institution; nor does it receive from the State an endowment adequate to the maintenance of its efficiency on the permanent basis contemplated by the Constitution. The Supervisors would, therefore, bespeak the favorable action of the General Assembly in behalf of the Seminary, and on the following recommendations, which, after careful deliberation, the Board deem indispensable to its success during the present year (1867):

STATE OF BENEFICIARY CADETS.

Under existing legislation, the maximum number of State cadets admissible to the institution is fifty-two, of which number *four* may be delegated by the city of New Orleans, and *one* by every other parish in the State. As the parishes of Orleans and Jefferson contain more than one-third of the voting population of the State, and annually pay into the State Treasury at least one-half of the whole general and School funds raised by taxation, it is obvious that a representation of but six cadets out of fifty-two does not afford a proper measure of justice to those communities. Nor are other populous parishes now represented in the Seminary according to any equitable rule. Suggesting, in this connection, that representation in the Seminary, at the public expense, may properly be based on the same principles of equity as are observed in the apportionment of representatives in the General Assembly, the Board would respectfully recommend that the maximum number of beneficiary cadets be made to correspond with that of representatives, and that, until a new census shall have been made, they be apportioned among the parishes in

conformity to the Apportionment Act of March 4th, 1859. This will allow to the city of New Orleans *twenty* cadets; to the parish of St. Landry, *four* cadets; to the parish of Rapides, *three* cadets; to the parishes of Ascension, Assumption, Avoyelles, Bossier, Caddo, Carroll, Claiborne, Concordia, De Soto, East Baton Rouge, East Feliciana, Iberville, Jefferson, Lafourche, Madison, Natchitoches, Plaquemine, Pointe Coupee, St. James, St. Martin, St. Mary, Tensas, Terrebonne, Union and West Feliciana, *two* each, and to all others *one* each—making an aggregate maximum of ninety-eight beneficiaries.

APPROPRIATION FOR STATE CADETS.

The Board of Supervisors, at its organization meeting in June last, made a careful estimate of the amount necessary to defray the expense of each cadet's boarding and tuition, and then ascertained that, even under the most favorable circumstances, the annual contribution by parents could not be fixed lower than four hundred dollars per annum. The amount allowed by the State for beneficiaries being but three-fourths of this sum, the Superintendent is now compelled to report an actual loss by the institution of \$9 28 per month on each cadet of that description. Concurring in the opinion of this cautions and provident officer, that the Seminary "cannot possibly educate and maintain a cadet for less than four hundred dollars per annum," which is fifty per cent. below the usual rates of other collegiate institutions of similar grade, the Board would respectfully suggest that State cadets be placed on the same footing as others, by making the appropriation for their board and tuition four hundred dollars per annum, instead of three hundred, as heretofore provided.

The increased amount thus requested will enable the Board of Supervisors to retain the services of all the present Faculty—no one of whom can be lost without serious detriment to the cause of education in our State—and to relieve the Superintendent, also, of the too onerous and multifarious duties now imposed upon him. Should the city school boards act promptly in the selection of candidates, and the police juries of now unrepresented parishes adopt a similar course, the Board may likewise be able to raise and amplify the course of instruction, improve the classification of pupils, and graduate annually a large class, including efficient teachers for public and private schools throughout the State; and thus will the institution gradually accomplish its constitutional mission as a "Seminary of learning for the promotion of literature and the arts and sciences."

ADDITIONAL BUILDINGS NEEDED.

Inviting the attention of the Legislature to that portion of the Superintendent's report referring to the insufficiency of accommodations at the Seminary, the Board would recommend that some provision be made for the erection of two additional dwellings for professors, and of a commodious out-building for the mess-hall and other departments of the commissariat. No estimate has yet been rendered of the amount actually needed for these improvements, but an appropriation of twenty thousand dollars, for such works of this kind as the Board and State Engineer may deem indispensable and practicable during the present year, is respectfully recommended.

Regarding the military feature of the Seminary as promotive of its discipline and general harmony, the Board shares the regrets of the Superintendent as to the continued suspension of that feature. It trusts, however, that the enduring patriotism of our people will soon remove the apparent distrust which causes a refusal of the use of arms to the youth of the Seminary.

AGRICULTURAL COLLEGE, ETC.

Should the State be permitted to participate in the grants of land or scrip provided by the act of Congress for the establishment of colleges for the promotion of agriculture and the mechanic arts, this Board may not err in suggesting that the State Seminary already constitutes the nucleus for a successful college of that character. Its situation being so central as to be equally accessible from all portions of the State, and in a region of country adapted to the culture, both of the great Southern staples and most of the cereals of the Mississippi valley, its Faculty, now so nobly engaged in giving the most ample theoretical instruction within its walls, may, with proper means at their command, go forth from the Seminary and also establish model farms and factories for the practical exercise of their pupils in all the industrial arts.

Supposing, however, that no such aid and auxiliaries can reasonably be expected, the Seminary, with its present organization and a liberal support from the State, is abundantly able to prepare young men for a careful exploration and development of all the physical resources of the commonwealth, and whatever amount, therefore, may meanwhile be expended to qualify them for this mission of usefulness will be amply repaid to the State by their future industry in increasing her general wealth and prosperity.

Respectfully submitted, by authority and on behalf of the Board of Supervisors.

W. L. SANFORD,
Vice President.

March 1st, 1867.

REPORT OF SUPERINTENDENT.

LOUISIANA STATE SEMINARY AND MILITARY ACADEMY, }
Near Alexandria, January 31st, 1867. }

HON. J. MADISON WELLS, *Governor of Louisiana,*
and *ex-officio President of the Board of Supervisors:*

SIR—I have the honor to submit the following reports for the year 1866:

- 1st. Report of officers, cadets and employees (A).
 - 2d. Report of Treasurer (B).
 - 3d. Report of property (C).
- I would also beg leave to report:

GENERAL CONDITION OF THE SEMINARY.

The institution began the year 1866 with five professors and thirty-five cadets, and a balance in the treasury of \$1,798 42½. It has now ten professors and one assistant professor, being the *largest* and among the ablest academic faculties in the South, 164 matriculates, and a balance in the treasury, on the 1st day of January, over and above all indebtedness, of \$5,957 90, with \$23,000 due in February, March and April, being the balance of fees of cadets for this session.

Considering these facts and, further, that much building, repairing and refitting has been done, and that a good chemical and philosophical apparatus and library have been provided; that the professors are most earnestly engaged in their duties, and that the cadets are, as a class, well behaved and studious, and learning well; under such circumstances, I think it is fair to conclude that the Seminary is *doing well*, and enters upon the new year with fine prospects of success. Indeed, there is no reason why, with a continuance of the generous support it has received from the Legislature and the people of the State, it may not become, in a short time, the ranking institution of the South-west. But even if it should receive a temporary check from the unsettled political status of Louisiana, and from the impoverished condition of the people, let the friends of the Seminary and the cause of education be of good cheer—never discouraged, but always at work, with the fixed purpose to succeed, and time must make this a noble institution of learning, in every way worthy of our glorious State.

I would be doing injustice were I not to acknowledge the generous and efficient service rendered the Seminary during the past year by His Excellency, the Governor, the Hon. Mr. Lusher, Superintendent of Public Education, Major Freret, State Engineer, and particularly by those devoted and untiring friends of the institution, Gen. G. Mason Graham, the *late*, and Hon. William L. Sanford, the present Vice President of the Board of Supervisors.

FINANCES.

The Treasurer's report (B) shows a balance on hand on January 1st, after paying all expenses, of \$5,957 90, besides provisions, text books, stationery, medicines and building materials on hand, valued at \$9,585 18.

Attention is particularly called to the accompanying statement (D) of current expenses for the months of October and December, by which it is seen that the total expenses for maintaining and educating 150 cadets (including 45 State cadets) in December were \$5,892 44, and the receipts from fees of cadets for that month were \$5,550, showing a deficit of \$342 44.

From resignations and other causes, the number of cadets *now* actually present is only 130; but as the cost of maintaining that number is not materially different from that incurred in the maintenance of 150 cadets, and as it is probable that the number will soon be somewhat increased, I think it would not be unsafe to assume the cost of maintaining a cadet in December (\$39 28) as the basis for the calculation of expenses for the coming year, which is equivalent to saying that the fees from cadets will not pay the annual expenses by \$3,424 40, which deficit must be met by the annuity of \$8,200, a fund that should be held sacred for improvements.

With the present large Academic Board, it will require 200 cadets to safely pay expenses, but as there is no probability of reaching that number this session, an effort should be made to have the appropriation for State cadets increased to \$20,800, so that the State will pay the same (\$40 per month) for a beneficiary that a citizen pays for his son, which would increase the income \$5,200, and render the seminary self-sustaining.

The institution cannot possibly educate and maintain a cadet for less than \$400 per annum, and it now actually loses \$9 28 per month on each beneficiary.

But it should be borne in mind that if the income is not in some way *increased*, the expenses must be *decreased*, and I do not see how that can be done without lessening the number of professors, which would, of course, cripple the efficiency of the school. But if the people of Louisiana cannot afford to maintain a full and efficient corps of professors, then, and as will be the alternative, the Seminary must lower its standard of education, and act on sound financial principles.

For building, repairs and refitting of furniture, etc., were expended \$19,939 97; for the library and apparatus, \$8,121 49, and for contingencies, \$4,239 14.

I was enabled to meet the excess of those expenditures over the appropriations by the Legislature, and what had been otherwise provided, by drawing on the recovered deposit of \$15,850 00 in the Louisiana State Bank, in the notes of that Bank, netting in U. S. Treasury notes \$13,234 00, and using, by authority of the Citizens' Bank, the \$9,000 00, reserved by act of the Legislature out of the \$25,800 00 of unpaid annuities voted at the last session, for the payment of the debt due that Bank, which was deferred for another year, the Bank accepting as security therefor the Auditor's certificate of the indebtedness of the State to the Seminary on account of the unpaid annuity of 1862.

The institution having to start entirely anew in the fall of 1865, and to re-provide itself with everything necessary to board, lodge and instruct two hundred young men, the expense incurred in *refitting* has been unavoidably heavy, and even the current expenses have been greater propor-

tionately up to this time than they will be hereafter. Under contingencies are charged old claims for indebtedness contracted during and prior to the war. There are still other debts of that nature. What the exact amount is, I have no means of ascertaining, but I do not believe it will exceed \$3,000 00, for the payment of which I would suggest that the Board of Supervisors make some provision.

Besides the annual appropriations of \$8,200 00, the interest on the Seminary Fund, \$20,800 00, for the support of the 52 State cadets, and \$1,000 00 to meet the expenses of the Board of Supervisors, I would suggest, that to put the Seminary on a proper footing, the following appropriations be made:

1st, \$8,200 the unpaid annuity of 1862.

2nd, \$20,000, to build two professors' houses.

3rd, \$10,000, to build necessary out-buildings and to improve the grounds.

4th, \$10,000, to enlarge library and apparatus.

BUILDING, REPAIRING AND REFITTING.

During the year there have been erected one large frame wash-house, two frame employees' houses, two frame kitchens for professors' houses, and one large brick bake-oven, and the lumber is on the ground for a large two story store-house. There have also been constructed many class-benches, desks, study tables, mess hall tables, book shelves and clothes presses. The main building and the two professors' houses have been put in good repair at considerable cost, some whitening of the walls and painting alone remaining to be done. The main building was originally so badly constructed that it needs the constant attention of the mason, carpenter and painter to keep it in repair. Nor is its capacity sufficient, either for recitation and examination halls, or for dormitories.

The rooms are generally too small for recitation rooms, and too large for dormitories; consequently, notwithstanding its huge dimensions, it is barely capable of accommodating 200 cadets, and has no room sufficiently large for a dining room or an examination hall. There are needed, then, several large halls and many dormitories.

The State Engineer, Major Freret, will embrace in his report to the Legislature plans and estimates of cost for the necessary extension of the main building.

In accordance with the directions of the Executive Committee, I purchased the house of Capt. Jarreau, near the Seminary, for \$6,000 00. It needs repainting, and some little repairs to the out-houses should be made.

At least two more professors' houses are greatly needed. There are now four married professors, three of whom are provided with comfortable houses, but the fourth is living in a cheap wooden structure recently built for a negro quarter. I think a suitable brick house can be built for \$10,000. The State engineer will also embrace plans and estimates for these in his report.

I have also purchased, by order of the Executive Committee, the forty acre lot of Rev. A. D. McCoy, immediately in rear of the Seminary, at \$8 per acre.

The outfit of furniture has been greatly increased during the year, so that 200 cadets can now be comfortably provided for; but I think it would be well to purchase, as soon as possible, 200 neat iron bed-steads, as many persons have at least a prejudice against sleeping on the floor.

A good deal has been done towards enlarging and clearing the grounds and repairing the roads, and a stout rail fence now encloses some 300 acres. But I think it is time to begin systematically improving the grounds. The large and unsightly pits left by the brick makers should be graded off, walks and carriage ways should be laid off, and hedges and choice trees and shrubbery should be planted.

The Police Jury of this parish having declined to unite with the Seminary in constructing a good road to Alexandria over the best and shortest route, by way of the falls and the forts, I would respectfully suggest that the Board of Supervisors take such steps as may be necessary to secure a road over that route. The road bed is already in pretty good order, but two bridges should be built at a cost not exceeding \$1,000.

ACADEMIC BOARD.

More than ordinary mention is due to the professors, who have shown, during the past year, so much devotion to the interests of the institution. It would be difficult to find a corps of instructors who have striven more earnestly and successfully, and who harmonize so thoroughly, and work so well together.

The professors elected in June last were promptly at their posts at the opening of this session; and Admiral Raphael Semmes, since elected to the chair of Moral Philosophy and English Literature, reported for duty on the first instant. The institution congratulates itself on securing the services of this gentleman of varied abilities, for the important chair assigned to him.

Dr. Page, Professor of Chemistry, etc., has been absent from his chair since November, engaged, by order of the Board of Supervisors, in collecting a cabinet of minerals and geological specimens in the Alleghany sections. He reports much progress, notwithstanding the inclemency of the weather. He will return by the first of February, and as it is likely that his class will be small, I would suggest that on his return he be directed to proceed to make a geological survey of the northern portion of this State.

I think the Professor of Modern Languages should be required to live at the Seminary. It is frequently the case that it is necessary to fill, temporarily, the place of one professor with another. In such cases a professor who is absent from the institution, except at fixed hours, is not available. His presence is also needed to add to the moral weight, and to aid in preserving order.

I am firmly of the belief that the surgeon has no time to devote to the duties of professor. Here the surgeon is *nurse* as well as physician; and with some two hundred persons present, it is often the case that his whole time, day and night, is required at the bed-side. Let him have the rank and pay, without the duties of professor. If he attempts both, he must neglect one or the other, and often both; and it is as unjust to neglect a class, as it is cruel to neglect a sick boy, who is far away from the comforts of his home.

The Superintendent should be relieved of the treasurership, and to a great extent, of the duties of his professorship. A moment's reflection must satisfy the Board, that the superintendence alone of this large establishment is as much as one man can well attend to. Now, the Superintendent is not only charged with the general oversight of the institution,

but his class duties require four hours a day, and he is also steward and treasurer.

If the Legislature should be unable to come liberally to the aid of the Seminary, I fear, considering the almost total failure in the crops of Louisiana, which has seriously affected the institution, that it will become necessary to reduce the number of professors. Whether that can be done without injustice, before the close of this session, is a matter for your Honorable body to determine. It is not the less my duty to report that the number of cadets should reach two hundred to justify the present number of professors.

CADETS.

The number of matriculates is one hundred and sixty-four, but the number now actually present is only one hundred and thirty, as above stated. To keep the institution in proper working order, there should not be less than two hundred cadets. We cannot hope to attain that number this session. Considering the impoverished condition of the people of Louisiana, and that few persons of other States know of its existence, I think the school has done well to receive its present number.

The register shows most of our cadets to be from the country districts; the city of New Orleans giving us but little support. The institution should have a special agent there, for the advancement of its interests.

I am pained to announce the death of two noble youths. Cadet Sidney Neven, of Lafayette parish, died on the third instant, of acute inflammatory rheumatism, and Cadet George Philip Bosworth, of Morehouse, on the eleventh instant, of congestion of the brain.

The register also shows the dismissal of eleven and the resignation of twenty-one cadets, the latter chiefly from want of funds.

But the cadets of 1866 were equally as studious and orderly as those of 1865. Occasionally there was some disorder, but even then the cadets were generally so manly and frank in all they did, and showed so much interest in the welfare of the Seminary, that it was an easy matter to induce them to return to the path of law and order; so that the very exceptions only served to prove that they were a model set of young men, in good behavior and application to study.

But it is to be regretted that they are generally of a low order of acquirements; the highest class in the institution being the third, or sophomore class; and the standard of admission must be low for years to come, making it necessary for the Seminary to be a preparatory school as well as a college; but as it is desirable to keep the two departments as distinct as possible, the Academic Board recommends that a suitable building be erected, near the main building, for a preparatory school, with its own principal, under the direction of the Superintendent, so that the standard of admission to the Seminary proper, may be raised, and a higher grade of scholarship finally attained. Good order and discipline would also be promoted.

I beg leave to call your attention to the result of the intermediate (January) examination, as appended to the roll of cadets (A). It was a rigid test of their progress during the first term of the session, and, generally speaking, the cadets acquitted themselves well.

STATE OR BENEFICIARY CADETS.

Forty-seven *beneficiaries* matriculated during the year. The city of New Orleans and forty-one parishes being represented (Avoyelles and Sabine, twice), and the parishes of Calcasieu, Madison, Natchitoches, St. James, St. Bernard, St. John the Baptist and Tensas, not represented; but since the 1st of January, cadets from Natchitoches and St. John the Baptist have arrived. It is much to be regretted that four of this class have been dismissed.

I regard the beneficiary cadets as the main support of the Seminary. As a class they are superior, being more studious and better behaved. They feel more deeply the necessity of study, and while a few of them are poor appointments, the great majority are learning rapidly, and the institution is proud of them. And the State should be proud of them, and prouder still will she be when they go forth, educated by herself, to conduct her own public schools. I believe it will soon be acknowledged that the system of beneficiary cadets, as pursued here, is the correct principle upon which to build up a successful public school system in the State. Not only is it the only practical plan by which a sound education can at this time be diffused throughout the State; but it is also the best means of supporting the colleges of the State. I would therefore particularly recommend the propriety of asking the Legislature to increase the number of State cadets to one hundred and twenty; two from each parish, and twenty-four from the city of New Orleans. Instead of the present futile attempt to establish public schools in sparsely settled sections of the State, would it not be better to apply a portion of the general School fund to establishing certain colleges and academies throughout Louisiana, where a certain number of beneficiaries can be educated? I believe such a system to be practicable; and in that way the number of State cadets here can be increased. It would also have the advantage of giving the school a liberal and constant support, which, together with the fees of other cadets, and the annuity of \$8,200, would make the Seminary self-supporting.

I would regard it a great misfortune to lose, for any reason whatever, the beneficiary cadets, and if the Legislature can now do nothing more, by all means let a liberal appropriation be made for their maintenance.

I have elsewhere called attention to the necessity of increasing the amount paid for a State cadet, to \$400 per annum.

COURSE OF STUDY.

The Academic Board deemed it advisable to establish, in addition to the regular scientific and literary courses, an "optional course" of study, by which parents and guardians may prescribe the English branches, and any other two subjects of study, unless the Academic Board see fit to excuse the cadet from English, and allow him to substitute another branch in its stead. Some unimportant changes were made in the scientific and literary courses, and it is believed that with such other modifications as experience may direct from time to time, the present programme of studies will work well, and fully attain the object had in view by the State in founding the institution.

DISCIPLINE.

With the military feature of the school suppressed, anything like military discipline, as required by the regulations, is preserved with much difficulty. An effort has, however, been successfully made to do the best possible under adverse circumstances; and for the general good order which has characterized the corps of cadets, the institution is greatly indebted to the vigilance and devotion to duty of the Commandant of cadets, Major West, and the senior Professor, Major Venable.

Having learned that the Virginia Military Institute had been allowed the use of arms, &c., I thought it my duty to apply to Gen. Sheridan, in September last, for the same privilege. My communication was forwarded to the Secretary of War, and returned *disapproved*. I have since called the attention of His Excellency, the President of the United States, to the action of the Secretary, hoping that it will soon be *reconsidered*.

But should it be probable that the military feature will continue suppressed for an indefinite time, I think it would be prudent to give up that feature of it altogether, and to modify the regulations accordingly.

While I could not but regard it a great misfortune to lose the military character of the school, yet its present anomalous state—military by law, but civil in fact—has but few of the good qualities of either system, and all the bad points of both. Without the uniform, the musket and the drill, a *military* academy has no *soul*, and without those necessary aids, military discipline is out of place and impossible to be maintained, except by the utmost vigilance on the part of the officers of the institution, and even then always liable to break down.

THE NAME OF THE INSTITUTION

Is most unfortunate, and I am convinced it drives away several cadets every year. With the common impression that a *seminary* is a school for *girls*, I have not been surprised that persons at a distance, hearing of the first part of its extensive name, wish to know the terms upon which *young ladies* are received. If it can regain its military status, the "*Louisiana Military Academy*" would be appropriate; if not military in fact, it may well become the literary and scientific department of the "*University of Louisiana*."

RELIGIOUS EXERCISES.

The occasional attendance of ministers of the Gospel at the Seminary does not give sufficient religious advantages to the institution, and I feel that it is necessary for the Board of Supervisors to provide, as soon as possible, for two regular chaplaincies—one *Roman Catholic*, the other *Protestant*. The pastor of the Catholic Church in Alexandria is now the Professor of Modern Languages at the Seminary. As soon as the finances of the school will permit, let him be required to reside at the Seminary and officiate religiously; and select some well educated Protestant minister, of liberal views, but great zeal in his sacred calling, as Professor of History and English Literature, who shall also hold service every Sabbath.

No person or set of persons, no community or school, can prosper without the aid of religion; and notwithstanding the difficulties to be encountered at a State school in so arranging a system of religious exercises as to steer clear of the prejudices of particular sects, yet the necessity for religion none the less exists. That necessity is inherent in our nature

and is *constant*, and can only be satisfied by constant religious influences. I cannot, therefore, too earnestly recommend that the Board will avail itself of the first opportunity to adopt some system by which religious influences will always be felt at the Seminary.

Whatever system be adopted, the great mass of Louisiana Christians, Catholic and Protestant, will, I feel assured, applaud it as a good step in the right direction.

The institution is greatly indebted to the Rev. Father Bellier, of the Roman Catholic Church, and Rev. Mr. Dowe, of the Episcopal Church in Alexandria, for their monthly visits during the past year; and I would recommend that, in consideration of the interest which those churches have manifested in the Seminary, the Board of Supervisors contribute to the support of their worthy pastors.

I must not omit to request the Board of Supervisors to thank the South-western Bible Society for a donation of one hundred Bibles and fifty-two Prayer Books, for the use of the cadets.

APPARATUS AND LIBRARY.

Major Venable, the Professor of Engineering, was sent to New York and Boston, during the last vacation, to purchase a suitable apparatus, &c., and a few of the most necessary books of reference. He selected the essential parts of a good apparatus, but many important instruments can be had, better and cheaper, in Europe, and it was thought best to defer purchasing them for the present, with the hope that the Board of Supervisors would soon be able to command the necessary means to give the institution an apparatus in keeping with the advanced state of the physical sciences, and becoming the pretensions and dignity of the school. But for what has already been done, Major Venable deserves the thanks of the Board.

Quite a good collection of mineralogical and geological specimens was obtained last summer, which, together with those recently collected by Dr. Page, puts the institution on a good footing in that respect.

I obtained from the State Library last spring 264 volumes, being a portion of the *duplicates* donated at the last session of the Legislature. I hope soon to receive the remainder. Then it was almost impossible to find out the true number of *duplicates* in the State Library, as it was in great confusion, and had no catalogues.

By purchase and donation, the number of volumes in the Library has reached 2,000; but although many of them are very valuable, yet it is but a paltry collection for such an institution, and considering the fact that there are many valuable scientific works in the State Library, which are never looked at, save occasionally by a few lovers of science, I would suggest the propriety of asking the Legislature to donate to the Seminary 1,000 of those volumes. But to put the Library and apparatus in useful and respectable order, an appropriation of \$10,000 is necessary.

The principal donor to the Library is General W. T. Sherman, formerly Superintendent, who feels a deep interest in the welfare of the Seminary, and has availed himself of every opportunity since the war to further the prospects of the institution.

MESS HALL.

This department is in good order. The cadets are well fed, and they

seem to be satisfied that if they are not faring sumptuously, the institution is feeding them as well as can reasonably be expected. Although much of the time of the Superintendent is devoted to the management of the commissariat, still it is thought to be better not to *let the boarding to contract*. The usual problem for a contractor is "how to furnish the least in quantity and cost for the highest price," which he would be sure to solve, much to the disgust and discontent of the cadets. I would regret to see any change in this respect.

CHANGE OF TIME FOR MAKING THE ANNUAL REPORT.

I think the annual report should be made at the close of the academic year, instead of at the close of the calendar year. By that means the report would embrace a session, and would be more intelligible and satisfactory than the present method of reporting two *half* sessions. More time, too, would be given for making up the report. Now the classes are progressing, the Superintendent has his duties as professor to perform, and he has no time to make a detailed report of the working of the institution. I hope the law will be changed as above suggested; if not, at least let the time for handing in the report of the Board of Supervisors to the Legislature be the first week in February, so that the result of the intermediate examination in January may be embraced. For that purpose, in part, has this report been delayed.

GRANT OF LAND BY THE U. S. GOVERNMENT FOR ESTABLISHING AGRICULTURAL AND MECHANICAL COLLEGES.

I beg leave, in conclusion, to call your attention to an act of Congress, of July 2, 1862, donating to each State 30,000 acres of land for each Senator and Representative in Congress, for the purpose of establishing a college for the promotion of agriculture and the mechanical arts. The particulars of the act I do not know, but I learn that the time within which the grant can be accepted will expire in July. I think, therefore, that it would be well to request the Legislature to accept the grant.

Whether any portion of it would fall to this institution, must be left to the judgment of others; but I believe the Seminary may well claim to come within the provisions of the act of Congress, and if the whole or a considerable part of the donation can be secured, it would add greatly to the endowment fund of the institution, and go far towards placing it above the caprice of fortune, and [especially the uncertainty of annual legislative aid.

Respectfully submitted,

D. F. BOYD,
Superintendent.

Board of Supervisors,

1866-7.

		POST OFFICE.
HIS EXCELLENCY J. M. WELLS, <i>Governor and ex officio President.</i>		New Orleans.
HON. WM. B. HYMAN, <i>Chief Justice,</i>	} <i>ex officio.</i>	New Orleans.
HON. R. M. LUSHER, <i>State Superintendent Public Education,</i>		
MAJ. WM. A. FRERET, <i>State Engineer,</i>		
HON. W. L. SANFORD, <i>Vice-President,</i>	} <i>Executive Committee.</i>	Alexandria.
HON. MICHAEL RYAN,		
REV. THOMAS S. BACON,		
DR. BARTHOLOMEW EGAN, <i>Bienville Parish.</i>		Mount Lebanon.
HON. L. M. NUTT, <i>Caddo Parish.</i>		Shreveport.
HON. S. O. SCRUGGS, M. D., <i>Natchitoches Parish.</i>		Natchitoches.
HON. ROBERT J. BARROW, <i>Pointe Coupee Parish.</i>		Livonia.
HON. WM. B. SMITH, <i>East Feliciana Parish.</i>		Clinton.
WM. C. BLACK, Esq., <i>Orleans Parish.</i>		New Orleans.
G. W. LEWIS, Esq., <i>Orleans Parish.</i>		New Orleans.

All communications to the Board should be addressed to Hon. W. L. SANFORD, Vice-President, and Chairman of the Executive Committee, Alexandria, La.

Academic Board,

JAN. 31. 1867.

- DAVID F. BOYD,
Superintendent and Treasurer, and Professor of Latin.
- RICHARD M. VENABLE,
Professor of Engineering.
- JOHN A. A. WEST,
Professor of Mathematics.
- JEAN PIERRE BELLIER,
Professor of Modern Languages.
- JOHN R. PAGE, M. D.,
Professor of Chemistry, Mineralogy and Geology.
- JAMES A. WILSON, M. D.,
Surgeon, and Professor of History and Physical Geography.
- JAMES M. BOYD,
Professor of Natural Philosophy.
- RAPHAEL SEMMES,
Professor of Moral Philosophy and English Literature.
- JAMES M. GARNETT,
Professor of Greek.
- JOHN P. MCAULEY,
Assistant Professor of Modern Languages.
- RICHARD M. VENABLE,
Acting (pro tem.) Commandant of Cadets.

MARCH 4, 1867.—Major JOHN A. A. WEST having resigned his Professorship, the Chair of Mathematics has been assigned to Major RICHARD M. VENABLE, and Col. SAMUEL H. LOCKETT has been elected Professor of Engineering and Commandant of Cadets.

CADETS.

Arranged in Classes according to merit, as determined at the Intermediate Examination, January 31st, 1867.

LITERARY COURSE—SECOND (JUNIOR) CLASS.

Class Grade.	NAME OF CADET.	RESIDENCE.	DATE OF MATRICULATION.	VALUES OF ANSWERS IN EACH STUDY—MAX'N, 100.					TOTAL REC'D. MAXIMUM, 400.	CONDUCT. NO. OF DEMERIT Sept. 1, 1866, to Jan. 31 1867.	REMARKS.
				MATHEMATICS	LATIN.	GREEK.	NAT'L PHIL.				
1	Gauthreaux, J. R. A.	Assumption Parish...	April 24, 1866	83.4	90.0	43.2	70.2		295.8	39.	

SCIENTIFIC COURSE—THIRD (SOPHOMORE) CLASS.

Class Grade.	NAME OF CADET.	RESIDENCE.	DATE OF MATRICULATION.	SECTION GRADE.								TOTAL REC'D. MAXIMUM, 400.	*CONDUCT. NO. OF DEMERIT Sept. 1, 1866, to Jan. 31, 1867.	REMARKS.
				MATHEMATICS		LATIN.	FRENCH.		NAT'L PHIL.					
				No. Sec.	Grade in Sec.		No. Sec.	Grade in Sec.	No. Sec.	Grade in Sec.				
1	McCormick, S. C.	Union Parish.	Oct'r 13, 1866	II	1	II	2	II	4	I	1	7	364.6	B. C.
2	Gassie, Pierre	W. Baton Rouge Par.	May 26, 1866	II	3	II	6	I	1	I	6	32	320.9	B. C.
3	Pierson, Jos.	Bienville Parish.	April 5, 1866	I	3	II	8	II	11	I	5	20	313.3	B. C.
4	Weems, E. V. H.	Rapides do	Jan. 3, 1866	I	6	I	2	II	3	I	12	52	308.0	
5	Mitchell, J. R.	New Orleans	Sept. 4, 1866	I	2	II	11	II	I	I	3		303.9	
6	Grimes, T. L.	Rapides do	Oct'r 2, 1865	I	4	III	4	I	3	I	7		292.2	
7	Packard, H. P.	New Orleans	April 9, 1866	I	6	III	6	I	4	I	9		260.5	
	Ordan, J. H.	Caddo do	Oct'r 12, 1866	II	7	III	9	II	13	I	4	21	252.4	
	Masdell, J. H.	Rapides do	Jan. 14, 1866	II	10	II	9	I	5	I	8		249.6	
	Bertis, N. R.	Rapides do	Oct'r 16, 1865	II	5	III	5	II	12	I	11		245.7	
	Wash. Henry	New Orleans	Jan. 16, 1866	II	8	III	1	I	7	I	10	42	238.9	B. C.
	Maslett, Oran	Rapides do	Jan. 3, 1866	II	11	III	10	II	8	I	14	38	231.5	B. C.
				I	2	III	7	I	13	I	14		228.4	B. C.
				II	13	III	5	I	14			4	228.4	B. C.
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Sept. 3, 1866

Jan. 3, 1866

Jan. 3, 1866

NAME OF CADET.	RESIDENCE.	DATE OF MATRICULATION.	SECTION GRADE.				CONDUCT.	REMARKS.
			MATHEMATICS		ENGLISH.			
			No. Sec.	Grade in Sec.	No. Sec.	Grade in Sec.	No. of DEMERIT Sept. 1, 1866, to JAN. 31, 1867.	
Bourg, C. J.	Assumption Parish	Sept. 3, 1866	II	Ex.	I	Ex.	20	B. C.
Carnahan, J. W.	Natchitoches do	Oct'r 29, 1866	II	10	I	Ex.	0	
Gallion, Z. T.	Natchitoches do	Jan. 8, 1867	II	Ex.	I	Ex.	0	B. C.
Ganlden, Z. D.	Catahoula do	Sept. 3, 1866	II	A.	I	A.	0	{ B. C. Ab- sent, Sick.
Haynie, J. C.	Rapides do	Jan. 21, 1867	II	Ex.	I	Ex.	0	
Madère, Octave	St. John Baptist Par.	Jan. 24, 1867	II	Ex.	I	Ex.	0	B. C.
Trudeau, H. E.	Pointe Coupée do	Dec. 10, 1866	II	Ex.	I	Ex.	0	B. C.
Young, G. J.	Vermillion do	Oct'r 24, 1866	II	8	I	Ex.	0	B. C.

Number of Cadets Examined—114—as follows :

STUDIES.	THIRD CLASS.			FOURTH CLASS.				PREPARATORY CLASS	
	Section.			Section.				Section.	
	I	II	III	I	II	III	IV	I	II
Mathematics.....	6	13	9	19	25			13	11
Latin.....	3	12	11	7	5	8	27		
Greek.....	2	9							
French.....	7	15							
English.....				24	26			24	
Natural Philosophy.....	16								

RESIGNED.

No.	Names.	Residence.	Date of Matriculation.	Date of Resignation.	Remarks.
1	Schofield, Walter.	Avoyelles parish.	April 20th, 1866.	September 3rd, 1866.	
2	Renshaw, Wm. W.	New Orleans.	September 20th, 1866.	October 15th, do	
3	Anthony, George L.	Rapides parish.	do 14th, 1866.	do 22nd, do	
4	Johnson, Charles L.	do do	do 18th, 1866.	do 22nd, do	
5	Bennett, Melville.	do do	October 2, 1865.	November 1st, do	
6	Hilliard, Walter.	Texas.	January 23rd, 1866.	do 20th, do	
7	Hunter, Robert P.	Baton Rouge	do 3rd, do	do 24th, do	
8	Wilson, John M.	Rapides parish.	September 3rd, do	do 30th, do	
9	Friedheim, J. B.	Morehouse parish.	January 22nd, do	December 22nd, do	
10	Henderson, E. G.	Rapides do	September 3rd, do	do 31st, do	
11	Blanchard, C. E.	do do	February 20th, do	do 31st, do	
12	Graham, Fergus.	do do	do 1st, do	do 31st, do	B. C.
13	Blanchard, F. A.	do do	do 20th, do	January 13th, 1867.	
14	Blanchard, A. C.	do do	do 20th, do	do 13th, do	
15	Duke, Mayo S.	Avoyelles do	January 6th, do	do 16th, do	
16	Waindsley, Geo. L.	Natchitoches parish.	October 11th, 1865	do 16th, do	
17	Thurber, Jno. W.	Mississippi	September 4th, 1866.	do 20th, do	
18	Maples, Wm. E.	Bossier parish.	do do	do 20th, do	
19	Lewis, Robert S.	Chalborne parish.	September 3rd, do	do 20th, do	
20	McDonald, W. D.	do do	do do	do 20th, do	
21	McDonald, C. E.	do do	do do	do 20th, do	

DISMISSED.

No.	Names.	Residence.	Date of Matriculation.	Date of Dismissal.	Remarks.
1	Anthony, C. C.	Sabine parish.	September 3rd, 1866.	September 7th, 1866.	B. C.
2	Cates, Jas. T.	Caddo do	do 3rd, do	do 11th, do	B. C.
3	Fontenot, G. A.	Natchitoches parish	do 12th, do	do 28th, do	B. C.
4	Febizer, John C.	Ohio	do 18th, do	October 5th, do	
5	Hough, Robert.	Caldwell parish.	do 28th, do	do 11th, do	
6	Brown, Henry J.	Rapides do	do 4th, do	do 18th, do	
7	Speight, J. W.	Sabine do	do 4th, do	do 18th, do	B. C.
8	Stockton, R. C.	New Orleans.	November 5th, do	November 8th, do	B. C.
9	Sugg, P. M.	Caddo parish.	March 15th, do	December 8th, do	B. C.
10	Campbell, T. W.	New Orleans.	September 10th, do	do 11th, do	
11	Hynms, Jno. B. S.	do	April 1st, do	do 11th, do	
			May 14th, do	do 11th, do	

DIED.

No.	Names.	Residence.	Date of Matriculation.	Date of Death.	Remarks.
1	Neveu, Sidney	Lafayette parish	May 1st, 1866.	January 11th, 1867.	B. C.
2	Bosworth, Geo. P.	Morehouse do	September 7th, 1866.	do 4th, 1867.	B. C.

B. C.—Beneficiary Cadet.

RECAPITULATION.

Number of Matriculates	164
Resigned	21
Dismissed	11
Deaths	2
Total number of cadets present	130

THE LOUISIANA STATE SEMINARY.

In Account with D. F. Boyd, Treasurer, during the year 1866.

DR.		CR.	
Dec. 31, 1866.—To amount paid for expenses, as per accompanying abstract and vouchers.....	\$53,064 18	Jan. 1, 1866.—By balance on hand from last report.....	\$1,798 42
Dec. 31.—To amount paid for Board of Supervisors, as per accompanying abstract and vouchers.....	919 90	Jan. 31.—By amount drawn from Pike. Lapeyre & Co., on the draft of Gov. Wells, based on Auditor's certificate.....	5,000 00
Dec. 31.—To amount paid for repairs, refitting and improvements, as per accompanying abstract and vouchers.....	19,777 50	Mar. 10.—By amount drawn from State Treasury, on account of appropriation for repairs, apparatus, &c.....	10,000 00
Dec. 31.—To amount paid for apparatus and library, as per accompanying abstract and vouchers.....	6,121 49	June 2.—By \$15,850 drawn from the Louisiana State Bank on the draft of Gov. Wells, being the balance due the Seminary, in that bank, at the close of the war, and exchanged for U. S. Treasury Notes at 83½ cents.....	13,234 75
Dec. 31.—To amount paid for contingencies, as per accompanying abstract and vouchers.....	4,239 14	June 4.—By amount drawn from State Treasury on account of appropriation for annuities of 1863, 1864, 1865.....	5,800 00
Balance.....	6,664 00	June 30.—By fees from cadets.....	14,176 58
		Aug. 31.—By amount drawn from State Treasury, on account of appropriation for State cadets and Board of Supervisors.....	16,600 00
		Nov. 5.—By amount drawn from State Treasury on account of appropriation for annuities of 1863, 1864, 1865.....	9,000 00
		December.—By fees from cadets.....	20,176 46
	<u>\$95,786 21</u>		<u>\$95,786 21</u>

ADDENDUM.

DR.		CR.	
Dec. 31, 1866—To unpaid accounts.....	3,334 10	Dec. 31, 1866—By balance on hand.....	6,664 00
Dec. 31—To balance	5,957 90	Dec. 31—By fees due from cadets, first term session	2,628 00
	<u>\$9,292 00</u>		<u>\$9,292 00</u>

D. F. BOYD,

Superintendent.

[B]

TREASURER'S REPORT.

Expense Account.

To amount paid	Faculty.....	\$12,926 90
do	House employes.....	4,950 15
do	Other employes.....	1,395 64
do	For furniture.....	2,839 33
do	For medicines.....	313 00
do	For text books and stationery.....	6,433 25
do	For stores.....	27,456 03
do	For freight.....	1,535 85
do*	For ferriage.....	124 60
do	For postage.....	89 73
Total		<u>\$58,064 18</u>

Board of Supervisors.

To amount paid	for traveling expenses.....	\$397 50
do	For printing addresses and report.....	395 40
do	Secretary.....	125 00
Total		<u>\$917 90</u>

Repairs, Refitting and Permanent Improvements.

To amount paid	for labor as per pay rolls.....	\$9,625 05
do	Materials.....	6,905 80
do	Furniture.....	3,246 65
Total		<u>\$19,777 50</u>

Apparatus and Library.

To amount paid	for apparatus.....	\$1,900 00
do	Library books.....	4,221 49
Total		<u>\$6,121 49</u>

Contingencies.

To amount paid	for old accounts, incurred before and during the war.....	\$1,445 00
To amount paid	for printing and advertising.....	2,357 45
do	For postage.....	44 79
do	For ferriage, etc.....	79 59
do	For purchase of land.....	318 40
Total		<u>\$4,239 14</u>

TREASURER'S REPORT—CONTINUED.

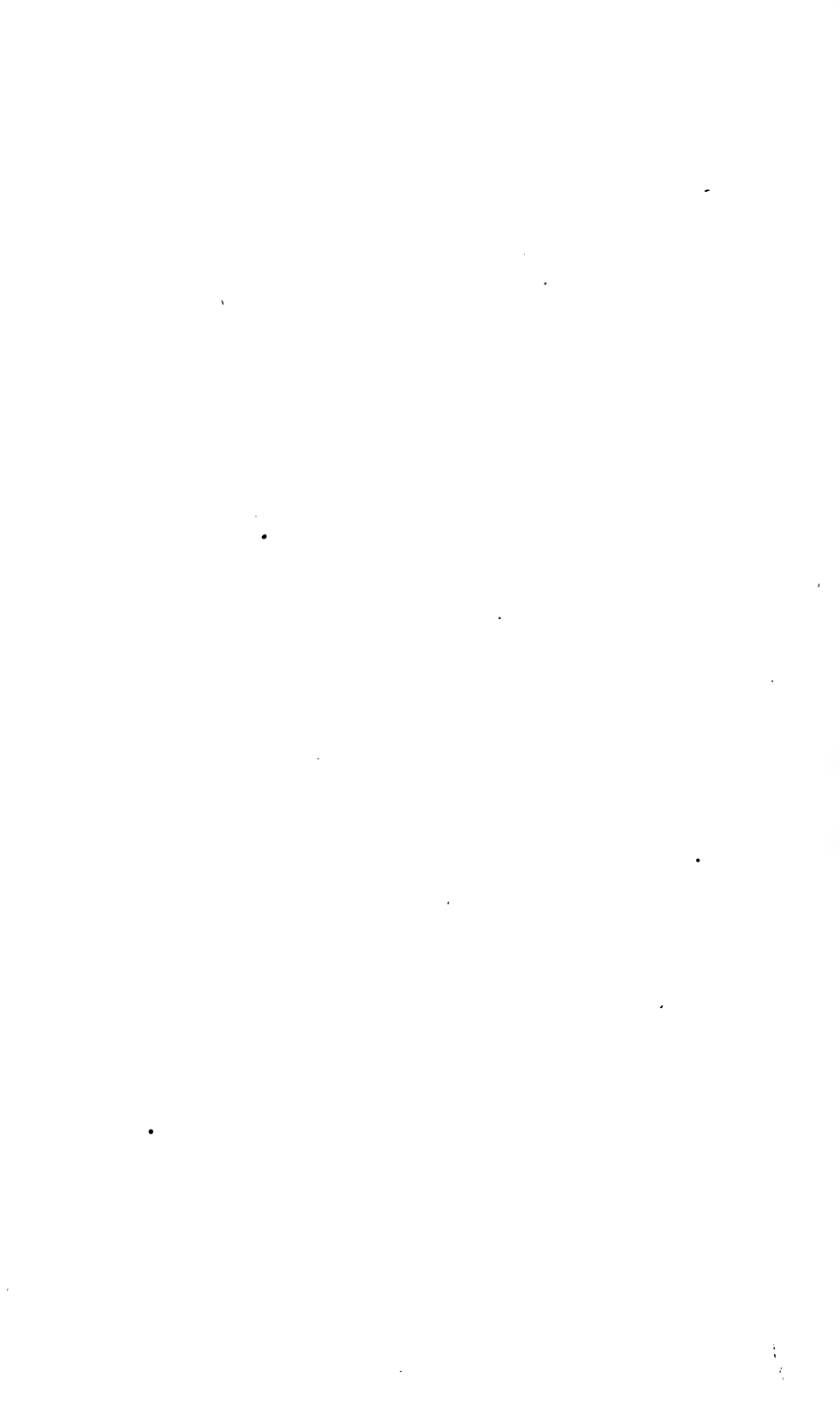
State Cadets' Account.

To amount received from State Treasury on account of State cadets	\$15,600 00
By amount credit to expenses.....	\$6,360 00
By amount credit to refitting of furniture, etc.....	2,600 00
	<u>8,960 00</u>
To balance on hand to State cadet fund.....	<u>\$6,640 00</u>

Estimated value of Provisions, Text Books, Stationery, etc.

Materials on hand January 1st, 1867:

Provisions.....	\$3,211 12
Text Books and stationery.....	4,561 22
Materials.....	1,812 84
Total ..	<u>\$9,585 18</u>



[D]

EXPENSES

Louisiana Military Academy and State Seminary for the months of October and December, 1866.

	October, 144 Cadets.	December, 150 Cadets.
Academic Board.....	1,535 00	1,851 00
Surgeon's fee.....	144 00	150 00
Mess hall, stores.....	2,120 52	2,251 57
" labor.....	274 15	284 50
Seminary building, stores.....	3 22	4 42
" labor.....	65 09	65 07
Stationery.....	4 00	4 00
Lights.....	47 00	52 63
Wash house, stores.....	14 73	11 52
" 15 cords wood.....	18 75	18 75
" labor.....	158 46	167 69
Wood, 35 cords, at \$1 25.....	43 75	43 75
Medicines.....	28 36	28 36
Freight and commissions.....	227 51	186 88
General labor, teamsters, &c.....	337 76	594 32
Expense of animals, &c.....	120 15	177 98
	5,182 45	5,892 44
Monthly expense per Cadet.....	\$35 99	\$39 28

RECAPITULATION.

October		December.	
100 pay Cadets, at \$40..	4,000 00	105 pay Cadets, at \$40..	4,200 00
44 State " 30..	1,320 00	45 State " 30..	1,350 00
	\$5,320 00		\$5,550 00

D. F. BOYD,
Superintendent.

LOUISIANA STATE SEMINARY OF LEARNING AND MILITARY ACADEMY.
 NEAR ALEXANDRIA, LOUISIANA.

Statement showing the number of Cadets in the respective classes, from each Parish of the State and from sister States, Jan., 1867.

Parishes, &c., whence Cadets received.	Junior 2d Cla.-s.										Sophomore, or 3d Cla.-s.										Freshman, or 4th Class.										Preparatory Class.										Four grades. Aggregate num- ber Cadets.	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	Literary Course.					Scientific Course.					Optional and Irreg'lar Course.					1st Division.					2d Division.					Optional and Irreg'lar.					1st Division.					2d Division.							Irreg'lar.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.	Pri.	Ben.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Present, January 31, 1867.

STATEMENT—Continued.

RECAPITULATION FROM REGISTER.

Session of 1866-'67—Whole number of matriculates.....	164
Resigned—19 private cadets and 2 beneficiaries, from Avozelles and Rapides.....	21
Dismissed—7 private cadets and 4 beneficiaries, 1 from Caddo, 2 from Sabine and 1 from Orleans.....	11
Died—2 beneficiary cadets, from Lafayette and Morehouse.....	2
Present.....	34
	<hr/>
	190

NOTE.—The parishes of Calcasieu, Lafayette, Orleans (right bank), Sabine, St. Bernard and Tensas are not now represented at the Seminary, nor are beneficiaries in attendance from Caddo, Madison, Morehouse and St. James.

1007

ANNUAL REPORT

OF THE

SUPERINTENDENT

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY

TO THE

BOARD OF SUPERVISORS,

FOR THE YEAR ENDING DECEMBER 31st, 1867.

PUBLISHED BY ORDER

OF THE

EXECUTIVE COMMITTEE OF THE BOARD OF SUPERVISORS.

New Orleans:

CRESCENT STEAM JOB PRINT, 94 CAMP STREET.

1868.

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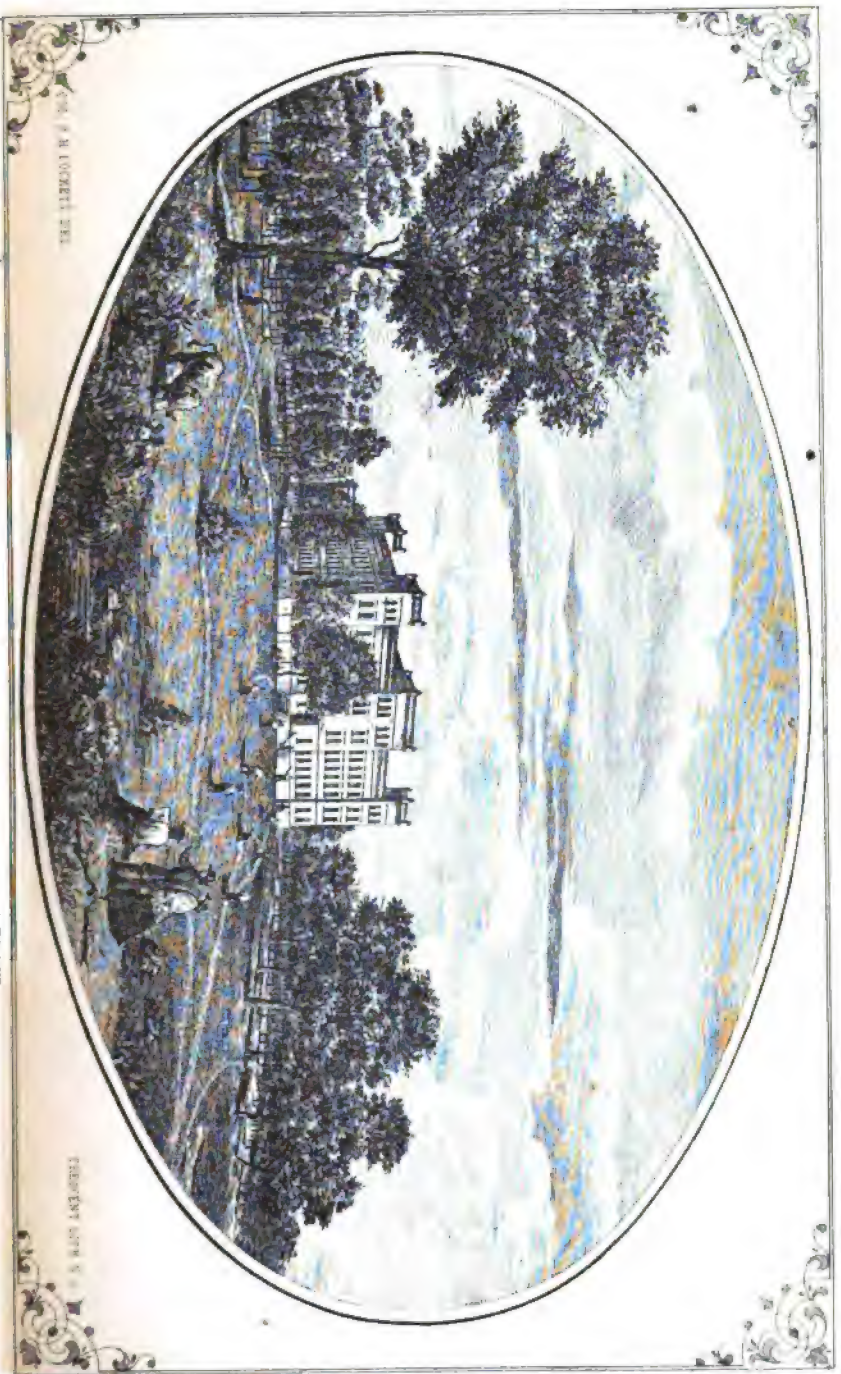
New Orleans: *g H. 322*

CRESCENT STEAM JOB PRINT, 94 CAMP STREET.

1868.



THE DISTANCE SPARKS SEMINARY.



THE DISTANCE SPARKS SEMINARY.

THE DISTANCE SPARKS SEMINARY.

Board of Supervisors.

1867-'68.

HIS EXCELLENCY JOSHUA BAKER,

Governor and ex-officio President.

POST OFFICE.
New Orleans.

HON. W. B. HYMAN, *Chief Justice,*

HON. R. M. LUSHER,

State Superintendent Public Education,

MAJ. WM. A. FRERET, *State Engineer,*

HON. W. L. SANFORD,

Vice-President,

HON. MICHAEL RYAN,

GEN'L G. MASON GRAHAM,

HON. BARTHOLOMEW EGAN, M. D., *Bienville Parish.*

HON. J. L. LEWIS, *Claiborne Parish.*

HON. S. O. SCRUGGS, M. D., *Natchitoches Parish.*

GEN'L ROBERT J. BARROW, *Pointe Coupee Parish.*

HON. J. B. SMITH, *East Feliciana Parish.*

HON. WM. C. BLACK, *Orleans Parish.*

HON. G. W. LEWIS, *Orleans Parish.*

ex-officio.

New Orleans.

Executive Committee. Alexandria.

Mount Lebanon.

Minden.

Natchitoches.

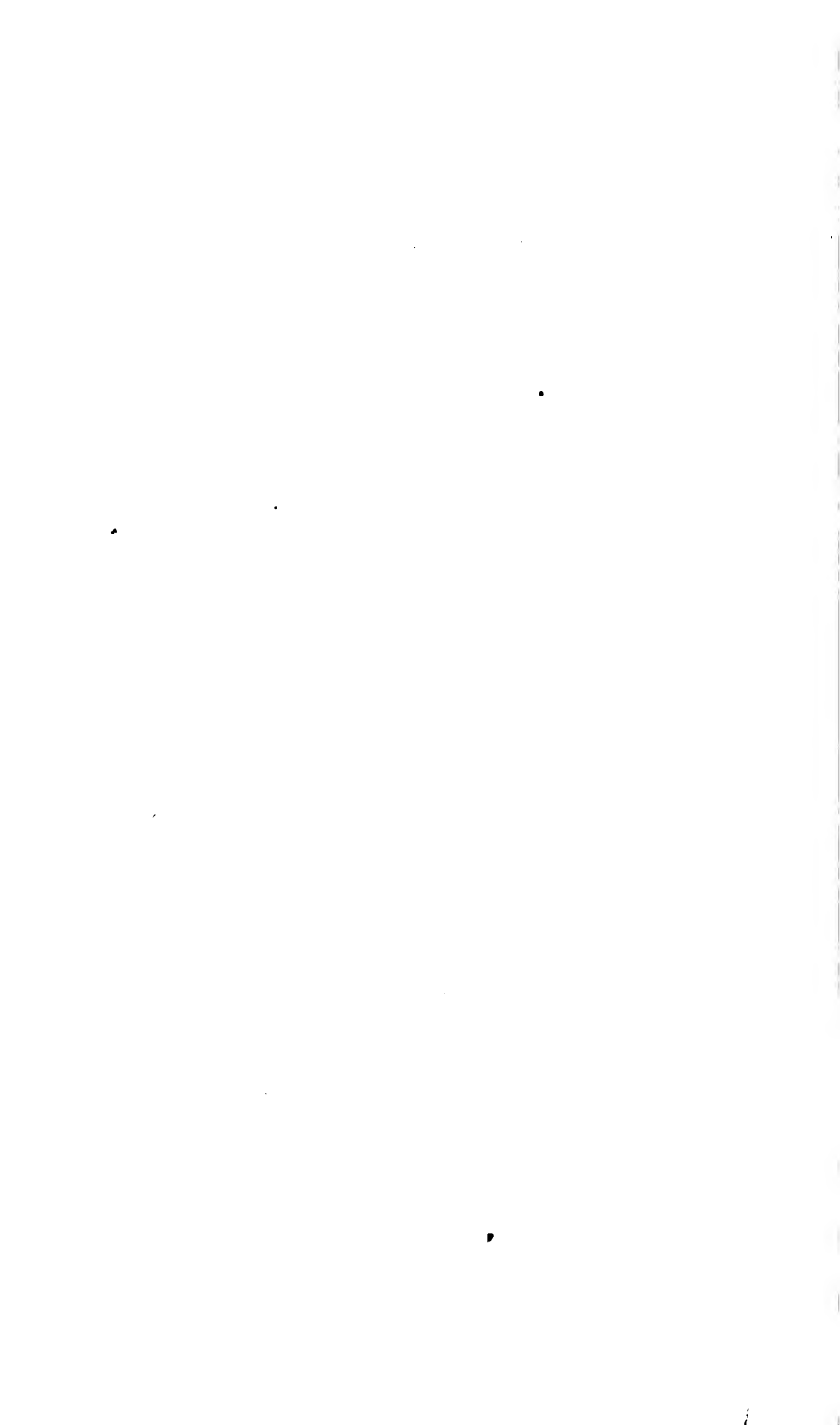
Livonia.

Clinton.

New Orleans.

New Orleans.

All communications to the Board should be addressed to Hon. W. L. SANFORD, Vice-President and Chairman of the Executive Committee, Alexandria, La.



Louisiana State Seminary and Military Academy.

GENERAL CONDITION OF THE SEMINARY,

I beg leave to say that the Institution, like our unfortunate State, has passed through a year of great trial and danger. Threatened with destruction by the peculiar political status of the South, by the bankruptcy of the State Treasury, by the impoverished condition of our people, and by the prevalence of a dreadful epidemic in the vicinity, the Seminary has overcome all obstacles, having to-day six (6) professors, one (1) assistant professor, and one (1) instructor in book-keeping, one hundred and forty-four (144) studious and well-behaved cadets, attending all the academic classes, except the *senior*, and having a balance to its credit of \$4005 00, over and above all liabilities.

With such an exhibit, besides an amount of provisions, text-books and stationery on hand, valued at \$3,787 87, and the necessary outfit of furniture for two hundred cadets, together with those indispensable aids to thorough instruction, viz: a valuable library of 3660 volumes, a good philosophical and chemical apparatus, a cabinet of minerals and the necessary engineering instruments, it is for the Board of Supervisors and the people of Louisiana to say what is the condition of the Seminary. Unless 1868 has in store for the Institution greater difficulties than it passed through successfully in 1867, I believe it has nothing to fear.

To the honorable Vice-President, Mr. Sanford, who at one time materially aided the Seminary from his own *private* purse, to Messrs. Swarbrick & Co. and James A. Greaham, of New Orleans, for the heavy credit extended the school in its darkest hour, and to Mr. S. B. Robinson, the business manager, for his admirable skill and economy, the thanks of the Louisiana public are eminently due.

I beg leave also to acknowledge my indebtedness to Hon. Mr. Lusher, Superintendent of Public Education, and to Capt. W. C. Black, members of the Board of Supervisors, for their advice and assistance in the discharge of my duties.

FINANCES.

The Report of the Treasurer enters so fully and minutely into details, that very little more need be said.

The Auditor's Warrants, endorsed by the State Treasurer, as *receivable for taxes*, were almost wholly exchanged for State Notes through the kindness of the tax collectors of New Orleans, principally Mr. Thomas Askew, and Messrs. Hill of Bossier, Preaux of Plaquemine, Vivis of Assumption, Gonzales of Ascension, Lagarde of Terrebonne, and Andrews of Rapides, the latter gentleman even paying partly in United States Treasury Notes.

Luckily the appropriations for the annuity of 1867 and for the support of the State cadets for 1868, were made by the last Legislature, and unless the depreciation of State notes is greater than it was last year, I feel confident that the Institution can pass through this year successfully.

Before it was known that there would be difficulty in cashing the Auditor's Warrants, some building, repairs, etc., not absolutely necessary, had been begun. Once begun, it was necessary to finish the work; but since April last, nothing has been done in that way that could possibly be avoided. Under that head have been expended \$10,907 02, including \$4,200 paid Mrs. C. Z. Jarreau on account of the purchase of her property.

For the same reason, some additional apparatus and library books, which could have been dispensed with, were purchased, the total expenditures on that account being \$4,018 18.

I beg leave to call the attention of the Board of Supervisors to the "old claims" for indebtedness contracted prior to and during the war, of which I estimate that there are still some \$2,000 outstanding. I hope some steps may be taken at once to defer the payment of those claims for one or more years. It is almost impossible to pay them now. It will be observed that the State Cadet Warrant for second quarter, ending in June last, has not been drawn, which arises from the Citizens' Bank having given up, at the request of the Board of Supervisors, the warrant for the unpaid annuity of 1862, held as security for its debt, and accepted in stead the authority to draw that warrant.

BUILDING, REPAIRING AND REFITTING.

Notwithstanding the insufficiency of outhouses, fencing, etc., very little building of any kind has been done, as before stated, for want of funds.

The repainting of the main building has been completed, besides the necessary *annual* repairs, arising chiefly from its original bad construction. It was found necessary to case the backs of twenty-four fire-places with heavy cast iron plates, as a protection to the walls and a safety against fire, there being simply the thickness of *one* brick between the fire and the flooring of the adjoining room. If there had been the means, much other work ought to have been done on the main building. The flooring in the south-west corner is being consumed with the *dry rot*, and not later than the coming summer, it will be necessary to renew it.

The large hall in the east wing of the main building has been well fitted up as a philosophical and chemical lecture room, and the two small rooms in the rear converted into a laboratory. Also a large number of extra benches was provided, to be used on public occasions.

The frame house purchased of Capt. Jarreau has been repainted, and with the exception of the roof, a portion of which needs renewal, and some unimportant work on the outhouses, that property is in good order. Two double log cabins were built, one for a kitchen to the Superintendent's house, the other for negro employees; the small brick house in rear of east wing of main building has been re-roofed and converted into a good store-room for fresh meats and vegetables, and a new gymnasium has been erected.

I think it very necessary to construct two more large underground cisterns in connexion with the main building, and two or more large tanks on top as a precautionary measure against fire. This should be done without delay. And the finances permitting, I would recommend the immediate construction of a large mess-hall, kitchen, store-rooms, etc., in the rear of the main building. The rooms, now occupied for those purposes, are greatly needed otherwise, beside much inconvenience and annoyance being avoided.

There being now four married professors, the three professors' houses are not sufficient; but till the Seminary can *afford* to erect others, they can be very cheerfully dispensed with.

Very little bedding, furniture or table ware has been purchased during the year; but at the close of this session, a good deal of such *refitting* will be necessary.

Not much has been done towards clearing and improving the grounds. They are naturally so rough and heavily timbered that it will require much time, labor and expense to beautify the place properly. At this time it cannot be attempted.

Under authority from the Executive Committee, I have exchanged with Mr. William Waters the timber on the eighty acres of land near his saw-mill, for eighty acres of land heavily timbered and adjoining the Seminary land on the North.

I have also purchased from Mr. E. R. Biossat, subject to the approval of the Board of Supervisors, forty acres of land lying immediately North of the lot purchased last year of Rev. Mr. McGey. I paid \$5 00 per acre. By that pur-

chase is secured an excellent location for a professor's house, near a large, fine spring.

I think it very necessary to purchase, as early as practicable, not less than one hundred acres of alluvial land as near the Seminary as possible, for a garden and pasturage for cattle.

I beg leave to call the attention of the Board of Supervisors to the bad condition of the road to Alexandria, with the hope that the Police Jury of this parish be again requested to unite with the Institution in repairing it and rebuilding the bridge over Rocky Bayou. The present wretched road has long enough disgraced the Seminary, the Parish and the State. Surely something can be done.

ACADEMIC BOARD.

The Institution has had the misfortune to lose from resignation during the past year Professors Semmes, Venable, Page and Garnett, and on account of ill health, the services of Prof. J. M. Boyd, since September last. Dr. Wilson has also resigned, to take effect February 1st.

Notwithstanding this blow to the *morale* and teaching force of the school, it is believed that the classes were never more efficiently taught. But it was accomplished by very severe extra duty from the remaining professors, to all of whom the thanks of the Institution are eminently due for the great service rendered, and for their eagerness to do even more than had been imposed.

W. A. Seay, Esq., has temporarily filled, with his well known ability, the Greek Chair since September last; and I trust he may be induced to accept a professorship permanently.

Rev. Edward P. Palmer, Professor elect of Moral Philosophy, did not arrive till December 12th, but he immediately entered upon his duties with a cheerfulness and efficiency which speak well for his future usefulness.

The classes in book-keeping, etc., have progressed well under the charge of Mr. S. B. Robinson, who, besides his heavy duties as business agent, has found time to devote three hours a day to those classes.

The Seminary will sustain a great loss in the withdrawal of Dr. Wilson. It will be difficult to find equal professional skill combined with as much strong native intellect. Since the resignation of Dr. Page, in addition to the duties of Surgeon, Dr. Wilson has filled the Chair of Chemistry.

Until the Board of Supervisors see fit to fill that chair, I shall assign Col. Lockett to it; and until a Surgeon is appointed, I propose requesting Dr. Fish, of Alexandria, to visit the Seminary five (5) times a week. I think it indispensable to have a resident surgeon, and hope one will be appointed as early as practicable; but I am still of the opinion, as expressed in my last report, that the Surgeon has no time to devote to any study but the *practice of medicine*, and I would therefore most earnestly recommend that no professorship be coupled with the Surgeoncy. But should it be thought by the Board that the Surgeon should also be an Instructor, I would request that he be not assigned to any particular chair, but required to report to the Superintendent for such academic duty as he may direct. He could occupy some two or more hours each day with

some of the primary classes—to that extent relieving other professors and enabling them to devote the same time to more important subjects. But I truly fear a good physician will prove a poor professor, and vice-versa.

Fearing that the Seminary could not dispense with the services of a Professor of Natural Philosophy, and his ill health rendering it impossible for him to assume the duties this session, Professor J. M. Boyd has forwarded his resignation; but as that Professorship, for pecuniary reasons, cannot now be filled, and Mr. Boyd is not drawing his salary, I would respectfully recommend that no action be taken on his resignation till the meeting in June. It is very probable that his health will be sufficiently restored to enable him to resume his duties next September.

I sincerely hope that our large Academic Board will be restored as soon as prosperity returns to our people and to our State; but till that bright day comes, the present corps of professors will most cheerfully assume all the duties of the Institution.

I cannot close my remarks regarding the Academic Board without particularly commending Assistant Professor John P. McAuley for his ability as an instructor and his devotion to his duties and the interests of the Seminary. Though not a full professor in rank, he has continually, during the past year, done full duty as a Professor. Nothing seems too difficult or irksome for him cheerfully to undertake; and I regret that his rank is not at all commensurate with his usefulness.

CADETS.

Owing to the failure of the crops and the unsettled political condition of the South, the number of matriculates is not as large as at this time last year, being now only 144: 90 State and 54 private cadets. Six have resigned, and two, I am pained to say, have been dismissed. Good conduct and more than ordinary devotion to study have, as in previous years, *since the war*, characterized the corps, and I am also gratified to state that the health of the cadets has been, generally speaking, much better than it was last year. Although the yellow fever prevailed in Alexandria last Fall, there was not a single case at the Seminary.

The progress of the cadets in their studies has been very satisfactory, a full set of Academic Classes being organized except the *Senior*. For more particular information regarding the Classes, the conduct and health of the cadets, I respectfully call attention to the Reports of Professors, (D), the result of the Intermediate Examination, (E), the Report of the Commandant of Cadets, (F), and the Report of the Surgeon (G).

The small number of private cadets may be discouraging to many friends of the Seminary, but considering the poverty of the people of Louisiana, generally, and bearing in mind that this Institution is yet very young and but little known, we need not be surprised that our numbers are few, even though some of the older and better established colleges of the North and East, presided over by the noblest and ablest men of the age, may be filled to overflowing. The Seminary must patiently abide its time, the friends of the Institution struggling

only the harder for the difficulties in the way of success; and some day, full of years and usefulness, the affections of our people strongly entwined around it and its halls filled with hundreds of students, it too will be called one of the great schools of America!

STATE OR BENEFICIARY CADETS.

I beg leave again to express my admiration for the State Cadets, as a class. Their studiousness and good behavior deserve especial mention. Many of them are becoming good scholars, and very few, I am glad to say, are doing less than their utmost to prove themselves worthy of their appointments. From each of the parishes of Assumption, Caddo, Calcasieu, Catahoula, Concordia, Natchitoches, Orleans and Sabine, there is one vacancy

The State cadet, regarded in his true light, as educated by the State to become, in turn, a teacher of Louisiana youth, is a most interesting feature of the Seminary, one which makes it really a *State Normal School*, and must cause all, who feel a deep interest in the educational advancement of Louisiana, to wish the more earnestly for the success of this Institution. The people at large must take a lively interest in the education of the beneficiaries; and when graduates of that class begin to leave the Institution and enter upon their duties as teachers throughout the State, there will spring up among our people a high regard and strong attachment for the Seminary, with a determination that it shall ever prosper and always be a benefit and an honor, to Louisiana.

Most sincerely, then, do I trust that no such misfortune, as the loss of the beneficiary cadets, will ever befall the Seminary.

COURSE OF STUDY.

During the past year the "Commercial School" has been added to the "Course of Study." It has served a good purpose, several cadets being thus enabled to study Book-keeping systematically, while they were also pursuing other studies.

With this addition the range of study is very extensive; yet I think its deficiency should not be lost sight of. Provision should be made as early as practicable for teaching more thoroughly Astronomy, Geology, Mineralogy, Agricultural Chemistry, Botany, Anatomy, Physiology, History and Constitutional and International Law; and at no very distant day I trust there will be a distinct Professorship of the English Language and Literature, embracing the Anglo-Saxon language.

It is often the case that cadets wish to study music, and I think it unfortunate that there is no such instructor here. I would therefore suggest that the Board of Supervisors take that matter into consideration, and if deemed advisable, secure the services of a scientific musician as soon as the finances of the school will admit.

DISCIPLINE.

The Seminary still labors under the misfortune of having its military feature suppressed. I believe, however, that it will soon be restored, and the Institu-

In this respect it seems to me that the Seminary is most fortunate. There are now two regular Chaplains, Rev. Father J. P. Bellier, of the Roman Catholic Church, and Rev. E. P. Palmer, of the Protestant (Presbyterian) Church, both of whom reside at the Seminary, being professors also, and hold prayers daily and divine service every Sabbath, attendance on which is *optional* with the cadet.

The presence of those reverend gentlemen, and their religious and moral precepts and examples, continually having a most wholesome influence on the cadets, leave but little more to be done towards throwing around the Seminary the necessary support of a truly Christian spirit.

At present, two large rooms have been set apart for *chapels*. Two neat little chapels, we should by all means have; and is it too much to hope that in a few years, when our people are no longer in straits for bread, the religious denominations of Louisiana will build them for us?

APPARATUS AND LIBRARY.

The Institution is fast becoming well provided in this respect. A few more of the most necessary instruments were purchased last year, and while it is very desirable to procure still others, yet for all the ordinary purposes of instruction, the present stock of apparatus and chemicals is sufficient. The number of specimens of minerals and fossils is becoming quite large, some very valuable ones having been added recently, both by donation and collection in this immediate vicinity, many curious and interesting fossils being found even on the grounds of the Institution.

If the friends of the Seminary throughout the State would occasionally send us any minerals or fossils they may find, our collection would soon do credit to Louisiana.

The Library now contains 3660 bound volumes, besides many pamphlets, maps and charts. During the past year there have been added 1660 volumes, 1293 by purchase, 301 "duplicates" from the State Library and 66 by donation. Many of the works are rare and very valuable, and altogether our little library lays much claim to respectability. It is sadly deficient, however, in the Public Documents and Official Reports of our country; but I shall make an effort to obtain much matter of that kind direct from Washington. For the little we have, we are indebted to Gen. W. T. Sherman and Hon. John Sherman.

CULTURAL AND MECHANICAL COLLEGES.

This grant was accepted by the last Legislature, and a bill was also introduced, too late unfortunately for final passage, to transfer to the Seminary all rights and privileges appertaining thereto. I trust so important a matter will be kept constantly in view, and that the Legislature, at its next session, will be again asked to confer all the benefits of the donation upon the Seminary. By the conditions of the grant, no part of the fund accruing from the lands can be used in the erection of buildings, so that the Legislature must either incur additional expense in the erection or purchase of suitable buildings, or make use of the buildings of one or more of her colleges already established. The latter policy has been adopted, with but few exceptions, by all the Northern and Western States, which have accepted the donation and established such schools. When we consider how poor Louisiana is and must be for years to come, and that thirty thousand acres of land for each of her Representatives and Senators in Congress, make the donation only two hundred and ten thousand acres, I think it would be unwise to divide the fund, as some suggest, between two or more of the State institutions. By giving it all to one institution, scientific knowledge would be advanced and finally more generally diffused throughout the State; and if this view is correct, where could the fund be placed with as much hope of a sure and speedy benefit to the rising generation of Louisiana, as at the Seminary, its scientific chairs already established, its laboratory, apparatus, cabinets and library already provided, and a large number of her cadets educated for the express purpose of becoming teachers in the State? There is no doubt but the Seminary is peculiarly fitted to receive the donation and to use it to much advantage. The whole fund would be a magnificent endowment, and would the sooner make the Seminary become what finally she must be, the great school of the South West.

THE PEABODY FUND.

An effort has been made, thus far in vain, to secure a part of the Peabody Fund for the benefit of the Seminary. The accompanying letters (H) from Dr. Sears, the agent, would indicate very little probability that this institution will ever receive any material aid from that noble gift for the education of the poor of

the South. The beneficiary feature of the Seminary, its "*Normal School*" character, and the terrible difficulties under which it labored last year, were all fully laid before the Trustees of that fund; and it would seem that ~~the fund was exhausted~~ It is still, however, to be hoped that our appeals

CONCLUSION.

I think it unfortunate that the Annual Report is not presented in June, so as to embrace a whole session. It would not only be more interesting and satisfactory to the Board and to the public, but the Superintendent, who is also a professor, would have more time for its preparation.

For the length of this report I beg pardon, my only apology being the importance of my subject and the belief that the Board of Supervisors consider me deeply interested in the discharge of my duties.

Respectfully submitted,

D. F. BOYD, *Superintendent.*

[A]

Roll of Officers and Cadets

OFFICERS:

D. F. BOYD, Superintendent and Treasurer.

SAM'L. H. LOCKETT, Commandant of Cadets.

JAMES W. WILSON, M. D., Surgeon.

Rev. J. P. BELLIER, Roman Catholic Chaplain.

Rev. E. P. PALMER, Protestant Chaplain.

S. B. ROBINSON, Business Agent.

CADETS.

No.	NAME.	RESIDENCE.	DATE OF ENTRANCE.	CLAS.	REMARKS.
1	Aleix, J. C.	New Orleans.	Sept. 4, 1866	Optional.	
2	Anderson, G. T.	E. Feliciana.	Sept. 3, 1866	4th	B. C. *
3	Andrews, M. R.	Texas.	Sept. 18, 1867	Optional.	
4	Barker, Frank.	Lafourche.	Sept. 2, 1867	Preparatory...	B. C. Resigned.
5	Barrow, Henry C.	Pointe Coupee.	Feb. 19, 1866	4th	B. C.
6	Berger, John.	Terrebonne.	Sept. 18, 1866	4th	
7	Berger, Robert.	Caddo.	Sept. 22, 1866	3d	B. C.
8	Blume, John H.	Jefferson.	Sept. 1, 1867	4th	B. C. Resigned.
9	Bourg, C. J.	Assumption.	Sept. 3, 1866	Preparatory...	B. C.
10	Bourges, L. L.	New Orleans.	Sept. 2, 1867	3d	B. C.
11	Boyd, J. L.	St. Martins.	March 16, 1867	4th	
2	Boyd, Washington.	St. Martins.	March 16, 1866	Preparatory...	B. C.
3	Braud, J. E.	Ascension.	Oct'r, 9, 1866	4th	B. C.
4	Bringier, Amedee.	St. James.	Sept. 2, 1867	4th	
5	Briant, William.	New Orleans.	Sept. 2, 1867	Preparatory...	B. C.
6	Bringham, F. H.	Rapides.	Feb. 20, 1866	4th	B. C.
7	Brown, W. S.	Terrebonne.	Sept. 18, 1866	4th	
8	Campbell, W. P.	Concordia.	Dec'r, 5, 1866	4th	B. C.
9	Chachere, Henry.	St. Landry.	Sept. 2, 1867	4th	B. C.
20	Craue, B. D.	New Orleans.	Sept. 2, 1867	4th	
1	Crandall, J. L.	Madison.	Nov. 18, 1867	Preparatory...	B. C.
2	Dancy, Lafayette.	Madison.	Jan'y 21, 1868	4th	B. C.
3	Decker, H. H.	Plaquemine.	Oct'r, 1, 1867	4th	
4	Delouche, J. B.	New Orleans.	Sept. 2, 1867	3d	B. C.
5	Delahoussaye, T.	St. Martins.	Sept. 3, 1866	4th	B. C.
6	Deatlates, J. L.	St. James.	May 5, 1867	4th	B. C.
7	Dorsett, Oran.	Rapides.	Jan'y 3, 1866	Optional.	
8	Doyal, W. J.	Franklin.	Oct'r, 1, 1866	4th	B. C. Ab. w't leave.
9	Ducote, Cleophas.	Avoyelles.	Sept. 3, 1866	4th	B. C.
30	Ducros, E. O.	St. Bernard.	April 10, 1866	4th	B. C.
1	Eady, John H.	St. Helena.	May 28, 1866	2d	B. C.
2	Easton, Warren.	New Orleans.	Aug. 29, 1867	4th	B. C.
3	Edwards, B. F.	Bossier.	Sept. 2, 1867	4th	B. C.
4	Edwards, C. W.	Avoyelles.	Sept. 2, 1867	Preparatory...	B. C.
5	Edwards, T. B.	Iberville.	April 18, 1867	3d	B. C.
6	Elmore, J. B.	Livingston.	Sept. 3, 1866	4th	B. C.
7	Feazle, M.	Union.	Oct'r, 1, 1867	4th	B. C. Absent sick.
8	Ferguson, J. I.	New Orleans.	Sept. 2, 1867	Preparatory...	
9	Ferguson, Robt.	New Orleans.	Sept. 2, 1867	4th	B. C.
40	Finch, Henry.	New Orleans.	Sept. 2, 1867	4th	B. C.
1	Fitzhugh, S. B.	New Orleans.	Oct. 18, 1866	Optional.	
2	Flint, James.	Rapides.	Jan'y 8, 1866	Optional.	
3	Fourny, J. V.	St. Mary's.	Sept. 3, 1867	4th	B. C.
4	Francis, F. W.	Terrebonne.	Sept. 3, 1867	4th	
5	Fulford, E. A.	Jackson.	Nov. 23, 1866	3d	B. C.
6	Gallion, Z. T.	Natchitoches.	Jan'y 8, 1867	4th	B. C.
7	Gassie, Pierre.	W. Baton Rouge.	May 26, 1866	3d	B. C.
8	Geren, J. P.	Claiborne.	Sept. 3, 1866	4th	B. C.
9	Grush, Henry.	New Orleans.	Jan'y 6, 1866	3d	B. C.
50	Glenn, D. S.	Carroll.	Sept. 17, 1867	4th	B. C.
1	Grimes, T. L.	Avoyelles.	Oct'r, 2, 1865	2d	
2	Green, C. J.	Jackson.	Oct'r, 22, 1866	4th	
3	Green, J. A.	Jackson.	Oct'r, 22, 1866	4th	
4	Guyol, F. A.	New Orleans.	Sept. 2, 1867	4th	B. C.
5	Guyol, S. L.	New Orleans.	Sept. 2, 1867	4th	B. C.
6	Gunby, A. A.	Claiborne.	Nov. 30, 1867	4th	B. C.
7	Hayden, Geo. M.	Washington.	March 28, 1866	3d	B. C.
8	Haynie, J. C.	Rapides.	Jan'y 21, 1867	4th	
9	Hebert, J. L.	Iberville.	Sept. 7, 1867	4th	B. C.
60	Hilliard, H. J.	Texas.	Sept. 18, 1867	4th	
1	Hingle, R.	Plaquemine.	Sept. 2, 1867	4th	B. C.
2	Hollingsworth, S. W.	Bienville.	Sept. 2, 1867	3d	
3	Hoffman, J. J.	New Orleans.	Sept. 3, 1866	3d	B. C.
4	Holt, J. C.	Baton Rouge.	Sept. 3, 1866	4th	
5	Holtstein, H. F.	West Feliciana.	Sept. 2, 1867	Preparatory...	B. C.
6	Holtberry, R. C.	New Orleans.	Sept. 2, 1867	4th	B. C.
7	Hutchinson, W. G.	New Orleans.	Oct'r, 10, 1867	Preparatory...	Dismissed,
8	Johnson, Chas. K.	Rapides.	Oct'r, 16, 1866	4th	
9	Jarreau, Lucien.	Rapides.	Sept. 3, 1866	4th	Resigned.
70	Jewell, A. L.	Pointe Coupee.	Sept. 7, 1866	4th	
1	Kerr, C. M.	St. Marys.	Jan'y 4, 1868	Preparatory...	
2	Kerr, F. M.	St. Marys.	Nov'r 24, 1866	4th	

CADETS--Continued.

No.	NAME.	RESIDENCE.	DATE OF ENTRANCE	CLASS.	REMARKS.
3	Knoblock, Gustave....	Lafourche.....	Sept. 2, 1867	4th	B. C.
4	Lanaux, Sidney.....	New Orleans.....	April 9, 1866	3d	B. C.
5	Landry, J. O.....	Ascension.....	Sept. 2, 1867	Preparatory...	B. C.
6	Lagarde, L. A.....	Terrebonne.....	Sept. 18, 1866	4th	B. C.
7	Larpeur, H. L.....	Terrebonne.....	Sept. 2, 1867	4th	B. C.
8	Lewis, J. M.....	Rapides.....	Sept. 17, 1867	3d	B. C. Absent sick.
9	Lewis, S. H.....	East Baton Rouge	Sept. 3, 1866	3d	B. C.
80	Lewis, C. C.....	Tensas.....	Dec. 17, 1867	Preparatory...	B. C.
1	Lockett, Henry W.....	Alabama.....	Oct'r. 1, 1867	Optional.....	B. C.
2	Lowry, J. A.....	Bossier.....	Sept. 3, 1866	4th	B. C.
3	Lusk, A. A.....	New Orleans.....	May 7, 1866	4th	
4	McCormick, S. C.....	Union.....	Oct'r. 13, 1866	3d	B. C.
5	McCollam, H. A.....	Assumption.....	Nov. 10, 1865	3d	
6	McDonald, W. C.....	Jackson.....	Sept. 2, 1867	4th	
7	McEnery, Henry.....	Onachita.....	Sept. 17, 1867	Optional.....	
8	Madere, Octave.....	St. John Baptist..	Jan. 24, 1867	4th	B. C.
9	Mather, Edward.....	St. James.....	June 3, 1867	4th	B. C.
90	Mather, Louis.....	St. James.....	June 3, 1867	4th	
1	Matthey, T. H.....	New Orleans.....	Sept. 2, 1867	3d	B. C.
2	May, J. M.....	Union.....	Sept. 17, 1867	4th	
3	Menge, Joseph.....	Plaquemine.....	Sept. 3, 1866	3d	B. C.
4	Messey, W. O.....	West Feliciana.....	Sept. 3, 1866	4th	B. C.
5	Milliken, James.....	Carroll.....	Sept. 3, 1866	4th	B. C.
6	Montgomery, T. F.....	Carroll.....	Feb. 22, 1866	Optional.....	
7	Montgomery, Vall.....	Carroll.....	Sept. 3, 1866	4th	
8	Moore, W. S.....	East Feliciana.....	Sept. 2, 1867	4th	B. C.
9	Moss, T. A.....	Caldwell.....	Oct. 10, 1866	4th	B. C.
100	Niles, T. R.....	Lafourche.....	Sept. 3, 1866	4th	B. C.
1	Nicholls, R. W.....	Assumption.....	Jan'y, 8, 1866	Optional.....	
2	Oliver, J. B.....	Mississippi.....	Sept. 10, 1867	Optional.....	
3	O'Neal, Mitchell.....	Onachita.....	Sept. 3, 1866	4th	B. C.
4	Packard, H. P.....	New Orleans.....	April 9, 1866	2d	B. C.
5	Parmele, F. F.....	New Orleans.....	Sept. 2, 1867	4th	B. C.
6	Petties, W. R.....	Moorehouse.....	Sept. 11, 1867	4th	B. C.
7	Pierson, Joseph.....	Jackson.....	April 5, 1866	2d	B. C.
8	Pratt, Geo. R.....	St. Landry.....	Nov. 28, 1865	Optional.....	
9	Pugh, Thomas.....	Assumption.....	Jan. 8, 1866	3d	
110	Purnell, W. R.....	New Orleans.....	Sept. 3, 1867	Preparatory...	B. C.
1	Purves, Geo.....	New Orleans.....	Sept. 4, 1866	Optional.....	
2	Radesch, L. P.....	Winn.....	Sept. 3, 1866	4th	B. C.
3	Ransdell, John.....	Rapides.....	Jan. 4, 1867	3d	
4	Ringgold, J. H.....	Rapides.....	June 18, 1867	4th	B. C.
5	Riu, Paul P.....	Lafayette.....	Feb'y. 1, 1867	4th	B. C.
6	Roberts, N. R.....	Rapides.....	Oct. 16, 1865	Optional.....	
7	Sanford, T. T.....	Rapides.....	Oct. 2, 1865	3d	
8	St. Martin, N. V.....	St. Charles.....	April 28, 1866	4th	B. C.
9	Spring, Hilton.....	St. Tammany.....	Sept. 3, 1866	3d	B. C.
120	Stampley, P.....	Tensas.....	Dec. 17, 1867	Preparatory...	B. C.
1	Stith, W. B.....	New Orleans.....	Jan. 12, 1868	Preparatory...	B. C.
2	Street, Gustave.....	New Orleans.....	Sept. 3, 1867	Preparatory...	
3	Stuart, C. D.....	New Orleans.....	Jan. 6, 1866	Optional.....	
4	Stuart, Robert.....	New Orleans.....	Sept. 3, 1867	4th	B. C.
5	Smith, J. D.....	West Feliciana.....	Nov. 20, 1867	Preparatory...	
6	Stubbs, Alcade.....	Jefferson.....	Sept. 3, 1866	4th	B. C.
7	Sutherland, E. W.....	De Soto.....	Sept. 2, 1867	4th	B. C.
8	Tarleton, G. D.....	St. Landry.....	Dec. 22, 1867	4th	B. C.
9	Taylor, E. S.....	St. Landry.....	May 14, 1866	Preparatory...	B. C. Ab. v't leave.
130	Tebault, E. R.....	New Orleans.....	Sept. 2, 1867	4th	B. C.
1	Trouard, Alcide.....	Jefferson.....	Sept. 3, 1867	Preparatory...	B. C.
2	Trudeau, H. E.....	Point Coupee.....	Dec. 10, 1866	4th	B. C.
3	Veazie, E. P.....	St. Landry.....	Sept. 23, 1867	4th	B. C.
4	Waddell, A. K.....	East Baton Rouge	Sept. 2, 1867	4th	B. C.
5	Waddell, H. B.....	Avozelles.....	March 6, 1866	4th	
6	Walmesley, G. L.....	Natchitoches.....	Oct. 11, 1865	Optional.....	
7	Weems, E. V. H.....	Rapides.....	Jan. 3, 1866	Optional.....	Resigned.
8	Whitworth, W. T.....	De Soto.....	Sept. 22, 1866	3d	B. C.
9	Wilson, John.....	Rapides.....	Sept. 3, 1866	Optional.....	Resigned.
140	Wilson, Charles.....	Rapides.....	Sept. 3, 1867	Preparatory...	Resigned.
1	Wilson, Goodridge.....	Missouri.....	Oct. 1, 1867	Optional.....	Resigned.
2	Wilson, Thomas.....	St. Mary's.....	Jan. 21, 1868	Preparatory...	B. C.
3	Wynn, Louis.....	New Orleans.....	Sept. 2, 1867	Preparatory...	B. C.
144	Young, G. S.....	Vermillion.....	Oct. 24, 1866	4th	B. C. Dismissed.

* B. C. Beneficiary Cadet.

Cadets arranged in Order of Merit in their Respective Classes, as determined by the Daily Class standing during the Half Session, and the Intermediate Examination in January, 1868.

Second (Junior) Class.

	Class Grade.	NAME.	SECTION GRADE.										CON- DUCT. MAX. 100.	TOTAL. MAX. 600.	REMARKS.
			Mathematics.	Latin.	Greek.	Engineering.	French.	Nat. Philosophy.	Chemistry.	Grade in Section	Grade in Section	Grade in Section			
SCIENTIFIC SECTION.	1	Grimes, T. L.	1	1		1		4	2				98	554.6	
	2	Packard, H. P.	3	3		6		2	3				95	501.3	
	3	Pierson, Joseph.	2	2		11		8	5				95	499.9	
LITERARY SECTION.		Eady, John H.	1	1	1		1	1					100	548.3	

Third (Sophomore) Class.

SECTION GRADE.

CLASS GRADE.		NAMES.		SECTION GRADE.										Con- duct.		Total.	REMARKS.
				Mathematics.		Latin.		Greek.		French.				Max.	400.		
		No. of Section.	Grade in Section.	No. of Section.	Grade in Section.	No. of Section.	Grade in Section.	No. of Section.	Grade in Section.	No. of Section.	Grade in Section.	No. of Section.	Grade in Section.	Max.	100.		
SCIENTIFIC SECTION.	1	McCormick, S. C.	I	I	I	I	3			II	II	III	3	88	350	French replaced by Engineering. See Optional and Irregular [Class.	
	2	Berger, Robert.	II	I	I	I	5						1	93	380		
	3	Deauche, J. B.	I	I	I	I	15						1	100	387.9		
	4	Gassie, Pierre.	I	I	I	I	12						1	100	323.2		
	5	Matthey, Julius H.	I	I	I	I	14						2	83	309.7		
	6	Menge, Joseph.	II	2	I	I	20						5	100	308.1		
	7	Hayden, G. M.	I	I	I	I	6						1	100	306		
	8	Grush, Henry.	I	I	I	I	11						5	93	296.5		
	9	Hoffman, J. J.	I	I	I	I	16						2	99	295.2		
	10	Lemaux, J. S.	II	4	I	I	def.						6	100	284		
	11	Pugh, Thomas.	II	def.	I	I	13						4	86	257.2		
LITERARY SECTION.	1	Spring, Hilton.	II	7	I	I	4						7	100	322.7		
	2	Lewis, Saml. H.	II	3	I	I	9						3	96	317.8		
	3	Bourges, L. L.	II	9	I	I	10						1	96	302.9		
	4	Sanford, T. T.	I	9	I	I	18						4	95	302.3		
	5	Edwards, T. B.	I	13	I	I	21						2	100	289.8		
	6	Hollingsworth, G. W.	I	2	I	I	def.						5	100	283.3		
	7	Fulford, E. A.	I	10	I	I	19						3	75	281.8		

Fourth (Freshman) Class.

Class Grade.	NAMES.	SECTION GRADE.										Con-duc.	Total Max.	REMARKS.
		Mathematics.		Latin.		Greek.		English.		French.				
		No. of Section.	Grade In Section.	No. of Section.	Grade In Section.	No. of Section.	Grade In Section.	No. of Section.	Grade In Section.	No. of Section.	Grade In Section.			
SCIENTIFIC SECTION.	1 Dealates, J. L.	III	1	II	2			I	3	II	5	100	342	Excused from French
	2 Lowry, J. A.	I	2	I	6							97	325.4	
	3 Greene, Jackson A.	II	3	I	8					II	7	100	321	
	4 Elmore, J. P.	I	4	I	7					II	2	94	319.7	
	5 Montgomery, Vall.	I	5	I	5					II	3	95	319.2	
	6 Mather, L. J.	III	6	II	1					II	1	97	318.2	
	7 Garen, J. F.	I	7	I	3					II	3	100	316.7	
	8 Gallion, Z. T.	II	8	II	4					II	10	97	316	
	9 Bringer, L. A.	III	9	II	3							100	310	
	10 Easton, Warren.	III	10	II	8			I	12	II	9	100	303.4	
	11 Sutherland, E. W.	II	11	I	4							100	300.2	
	12 Kerr, F. M.	I	12	I	17			I	6	I	2	92	297.8	
	13 Glenn, Duncan.	III	13	I	6					II	11	95	295	
	14 Moss, T. A.	I	14	I	12					II	4	90	291.4	
	15 Hebert, Ignace.	II	15	I	15					II	6	100	291	
	16 Holt, J. C.	I	16	I	10					II	13	97	290.9	
	17 Milliken, J. S.	I	17	I	11					II	7	100	290.8	
	18 Ferguson, Robert.	I	18	I	11			I	23			83	284.2	
	19 Finch, H.	III	19	II	23					I	7	97	274.2	
	20 Boyd, John Ledoux.	III	20	II	13			I	8			95	271.7	
	21 Moore, W. Lewis.	III	21	II	19			I	20			100	271.6	
	22 Hingle, R.	III	22	II	11			I	18			100	264.3	
	23 Ringold, J. H.	III	23	II	33			I	17			100	264	
	24 Knoblock, Gustave.	II	24	II	7			I	17			93	260.5	

Excused from French

Preparatory Class.

Class Grade.	NAMES.	SECTION GRADE.			Conduct.		Total.		REMARKS.
		Mathematics.	Latin	English.	Max.	100.	Max.	100.	
		Grade in Section.	Grade in Section.	Grade in Section.					
1	Boyd Washington.....	4	1	22	98	322.9	In Fourth Class English.		
2	Holstein, Henry F.....	8	6	5	100	313.5			
3	Bent, William.....	def.	3	1	93	308.9			
4	Kynn, L.....	7	4	6	93	308.7			
5	Edward, C. W.....	10	9	4	100	297.7			
6	Edward, Alcide.....	9	5	10	93	296.3			
7	Landry, Julien O.....	9	8	7	98	288.7			
8	Purcell, W. R.....	def.	2	2	78	285.4			
9	Ferguson, James J.....	def.	7	3	87	282.1			
10	Bourg, C. J.....	def.	10	11	97	255.2			

"Def"—Deficient.

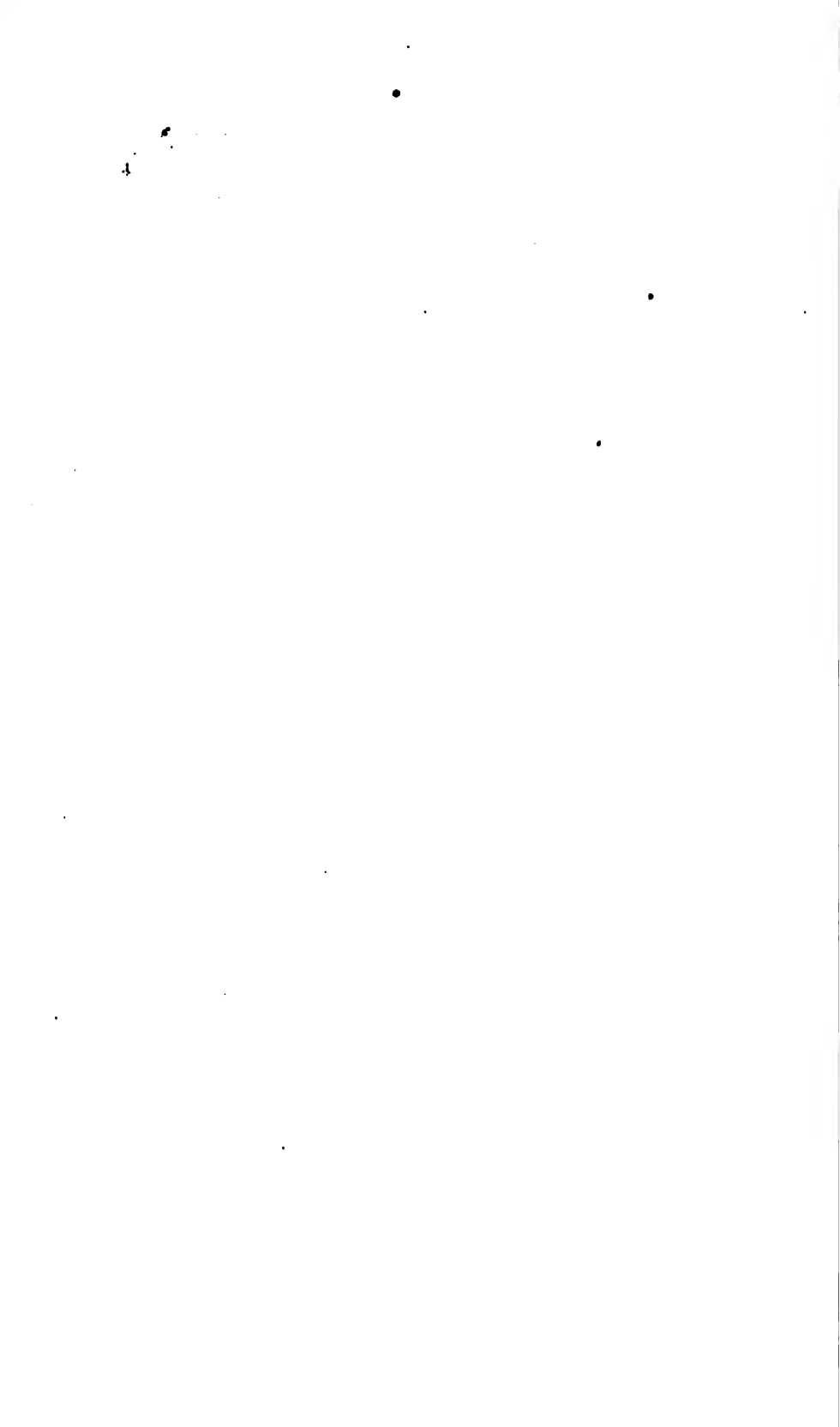
Optional and Irregular Class.

NAMEs,	Mathematics			Latin			Greek			English			French			Natural Philosophy			Chemistry			Engineering			Conduct Max. 100.	REMARKS.
	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.	Class.	Section.	Grade.		
Alex, Jacinto	IV	I def											IV	II	5										100	Entered late, excused from examination.
Andrews, M. R.	IV	III	20				IV		2																100	Entered late, excused from examination.
Barrow, H. C.	P	I	6				IV		15																100	Entered late, excused from examination.
Brandell, J. L.																									100	Also attending 3d Class.
Dancey, Lafayette ..																									100	Sick; not examined Math. and French.
Delonde, J. B.	M	I	6																						97	Also attending 3d Class.
Dorsett, Oran.	M	I	7																						91	Also attending 3d Class.
Fitzhugh, S. R.	P	I def	IV	II def																					100	Also attending 3d Class.
Flint, J. T.	IV	II def	III	I def																					96	Entered late, excused from examination.
Francis, F. W.	IV	II	1	III	I	7																			100	Entered late, excused from examination.
Gassie, Pierre.	IV	II	1	III	I	7																			76	Also attending 3d Class.
Green, C. J.	IV	II	1	III	I	7																			87	Entered late, not examined in French.
Grush, Henry.	IV	II	1	III	I	7																			99	Also attending 3d Class.
Gunby, A. A.	IV	II	1	III	I	7																			96	Entered late, excused from examination.
Hoffman, John J.	IV	II	1	III	I	7																			100	Entered late, excused from examination.
Johnson, Chas. K.	IV	II	1	III	I	7																			76	Entered late, excused from examination.
Kerr, C. M.	IV	II	1	III	I	7																			87	Also attending 3d Class.
Lewis, Curtis C.	IV	II	1	III	I	7																			93	Entered late, not examined in French.
Lockett, Henry.	P	I def	IV	II	14																				100	Also attending 3d Class.
Mathew, Edward.	IV	II	8																						94	Entered late, excused from examination.
Mathew, Julius H.	IV	II	8																						94	Entered late, excused from examination.
McCollum, H. A.	IV	II	8																						100	Entered late, excused from examination.
McCormick, S. C.	IV	II	8																						100	Entered late, excused from examination.
McEnery, H. W.	IV	II	8																						100	Entered late, excused from examination.
Montgomery, T. F.	IV	II	8																						100	Entered late, excused from examination.
Nicholls, R. W.	IV	II	8																						100	Entered late, excused from examination.
Oliver, J. B.	IV	II	8																						100	Entered late, excused from examination.
Pratt, Geo. K.	IV	II	8																						100	Entered late, excused from examination.
Purves, Geo. S.	IV	II	8																						100	Entered late, excused from examination.

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D. F. BOYD, Superintendent.

Note.—Reports (C.) (D.) (F.) (G.) and (H.) omitted in the publication.



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ANNUAL REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY,

FOR THE YEAR ENDING DECEMBER 31, 1868.

NEW ORLEANS:
A. L. LEE, STATE PRINTER.
1869.

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2014, 2014

2014, 2014, 2014, 2014

2014, 2014, 2014

2014, 2014, 2014

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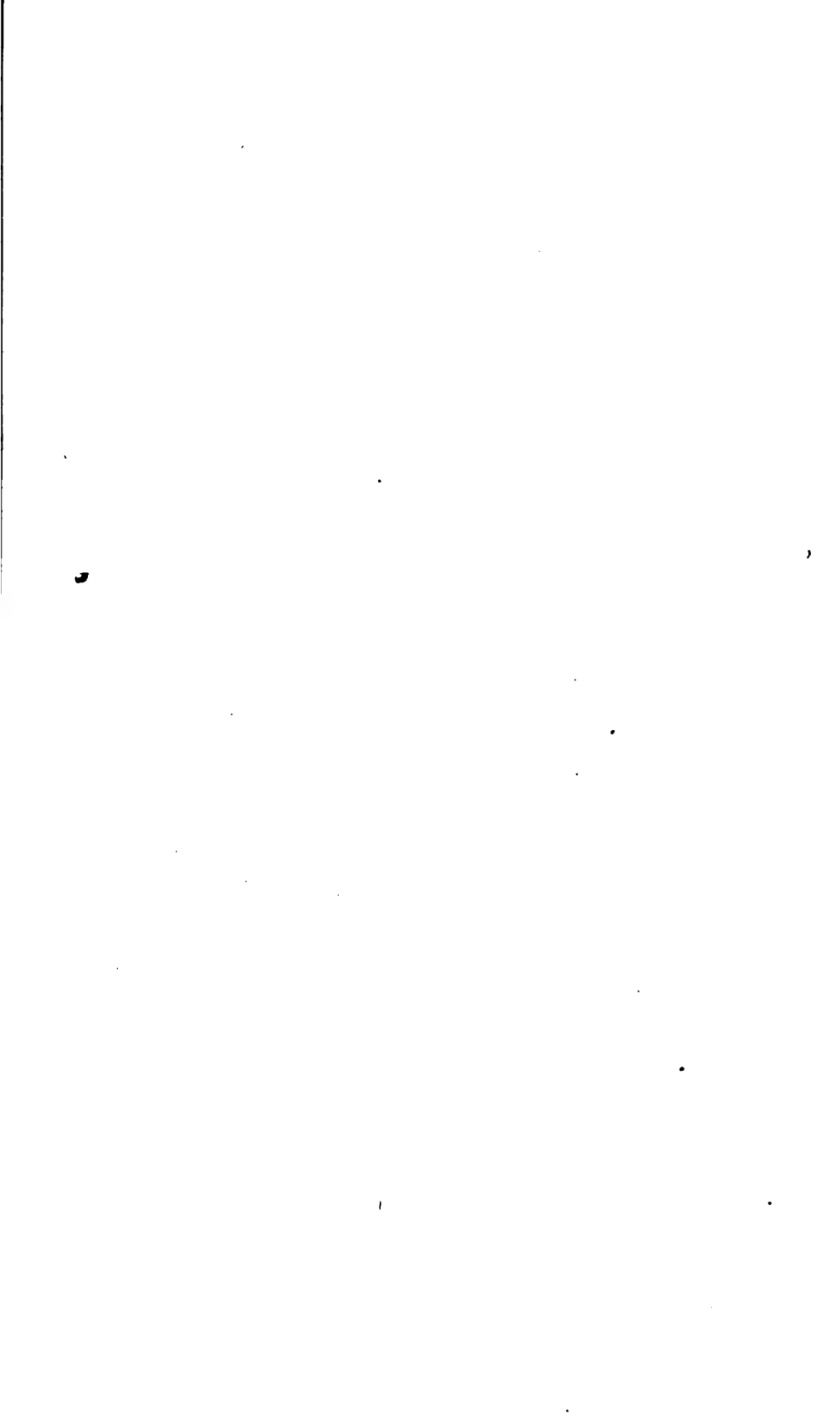


BOARD OF SUPERVISORS.

1868-'69.

HIS EXCELLENCY H. C. WARMOTH,		POST OFFICE.
<i>Governor and ex-officio President.</i>		New Orleans.
HON. JOHN T. LUDELING, <i>Chief Justice,</i>	} <i>ex-officio.</i>	New Orleans.
HON. THOMAS W. CONWAY,		
<i>State Superintendent Public Education,</i>		
MAJ. WM. A. FRERET, <i>State Engineer,</i>	} <i>Executive Committee.</i>	Alexandria.
HON. W. L. SANFORD,		
<i>Vice President,</i>		
HON. MICHAEL RYAN,		
GEN. G. MASON GRAHAM,		
HON. BARTHOLOMEW EGAN, M. D., <i>Bienville Parish,</i>		Mt. Lebanon.
HON. J. L. LEWIS, <i>Claiborne Parish,</i>		Minden.
HON. S. O. SCRUGGS, M. D., <i>Natchitoches Parish,</i>		Natchitoches.
GEN. ROBERT J. BARROW, <i>Pointe Coupée Parish,</i>		Lavonia.
HON. J. B. SMITH, <i>East Feliciana Parish,</i>		Clinton.
HON. WILLIAM C. BLACK, <i>Orleans Parish,</i>		New Orleans.
HON. G. W. LEWIS, <i>Orleans Parish,</i>		New Orleans.

All communications to the Board should be addressed to Hon. W. L. SANFORD, Vice President and Chairman of the Executive Committee, Alexandria, Louisiana.



LETTER OF TRANSMITTAL.

EXECUTIVE DEPARTMENT, STATE OF LOUISIANA,
New Orleans, January, 1869.

To the Honorable Speaker of the House of Representatives:

I have the honor to transmit herewith for the information of the House of Representatives, the "Annual Report of the Board of Supervisors of the Louisiana State Seminary of Learning and Military Academy, for the year ending December 31, 1868."

H. C. WARMOTH,
Governor of Louisiana.



REPORT.

To the Honorable the Senate and House of Representatives
of the State of Louisiana.

In behalf of the Board of Supervisors of the Louisiana State Seminary of Learning and Military Academy, I have the honor to submit the report for the past year, as required by law.

The report of the Superintendent, herewith transmitted, contains such an accurate and complete account of the condition of the institution during the past year, carefully prepared by one so competent to the task, as to render it unnecessary to do more than recommend its wise suggestions to the favorable consideration of the General Assembly. The past year has indeed been a trying one to the State Seminary, and the fact that it has been able to pass safe through such a crisis should be sufficient to demonstrate its vitality to the minds of those who have doubts as to the ability of the State of Louisiana to maintain a literary institution of high grade. Owing to the heavy discount on the liberal appropriation made by the last General Assembly, and the small number of pay cadets, consequent to the agricultural disasters of the past two years, the Seminary has found itself sorely pressed for funds to meet its daily expenses. That it has been able to pass through such an ordeal at all, is due mainly to the skill and ability with which its superintendent has managed its affairs, and to the self-denying spirit with which all the members of the Academic Board have been animated in their noble profession, at a time when the prospects of remuneration were by no means encouraging. That the General Assembly will come liberally to the relief of the State Seminary we are not permitted to doubt. From a careful examination of the estimates made by the Superintendent, we are of opinion that the appropriation asked for is as low as it can be made to relieve the institution from the embarrassments under which it is now laboring.

In this connection we would call special attention to the support of the State cadets, and would respectfully ask that such an appropriation be made as to maintain comfortably the full number pro-

vided for by the present law. It may seem, at first sight, a heavy burden, in the present impoverished condition of the State, to support ninety-eight students at the public expense; but a moment's reflection should satisfy every one that it is an investment from which the State will receive more than a full equivalent. Education in Louisiana, it must be admitted, has heretofore been at a very low ebb. This has undoubtedly been owing to the want of competent teachers to conduct primary schools and academies in the different parishes. The young men of Louisiana have generally been taught to despise the position of a teacher, and for obvious reasons, the demand could not be supplied from other sources. The object of the support afforded by the State to the beneficiary cadets at the seminary was to supply this deficiency. As a return to the State for their education, they are required to teach school for two years after leaving the walls of the institution. The first class will graduate at the end of the present session, to be followed each year by a larger one, of which the very best scholars will take their places as enlightened educators of the youth of Louisiana. The influence of the seminary will, therefore, soon commence to be felt in the increased thoroughness of preparation in the common schools and academies, without which, the building up of a first class literary institution is an impossibility. This happy result will be the consequence of the assistance furnished by the State to the education of meritorious young men who are without the means of defraying the expenses of of their own education. It is no new experiment. It has been tried in other States, and been crowned with complete success in the dissemination of the blessings of education among the people, and the elevation of the standard of scholarship in the schools and colleges of the country.

Now that the State Seminary has struggled successfully through that period which is generally the most critical in the history of such institutions, the Board of Supervisors feel confident that it will not be suffered to go down through neglect on the part of the State authorities to afford the assistance now needed to place it on a permanent foundation. Louisiana must have such an institution as the Seminary was intended to be by those who brought it into existence. Of late years, education in most of the States has made rapid strides towards attaining that point which shall best adapt it to the requirements of the age. The spirit of the age has assailed the walls of our colleges and demanded that our young men shall no

longer be educated to fit them for times which have long gone by, and for a condition of things which no longer exists. The conductors of our literary institutions have been compelled to admit that the education suitable for a Roman Senator or a Monk of the middle ages would be sadly out of place if forced upon a youth who is to discharge the practical duties incumbent on those whose lot has been cast in this utilitarian age. The leading colleges, have been forced to make provision for more thorough instruction in the sciences which modern investigations have so much enlarged. Scientific schools are springing up everywhere, fostered by the National Government, and endowed by State aid and private enterprise and liberality. Such an institution Louisiana must have; such an institution her seminary was intended to be. For, while the instruction in the ancient languages is thorough, and is necessary for a large class of her pupils, and while it is also the purpose of the Board of Supervisors to make provision, at an early day, in accordance with the suggestion of the superintendent, for instruction in the oriental languages, yet it is intended that the institution shall be second to none as a scientific school, where the youth of Louisiana may obtain instruction, hitherto sought abroad, in these sciences which find a wide field for exercise in the development of those resources which a beneficent Creator has lavished upon our beautiful State. For a view of the proposed enlargement of the sphere of usefulness of the seminary as a school of science, we invite attention to the report of the Superintendent. Instruction is much needed in agriculture and the mechanical arts, and it is to be hoped that the seminary may soon be so fortunate as to receive Louisiana's quota of the land appropriated by act of Congress for schools of that description.

We take pleasure in testifying to the uniform zeal, energy and fidelity with which the members of the Academic Board have performed their duties during the past year, and to the general studiousness and gentlemanly deportment of the cadets under their charge.

Respectfully submitted,

H. C. WARMOTH,

Governor of Louisiana and *ex officio* President Board of Supervisors.
Louisiana State Seminary, January 1, 1869.

REPORT OF THE SUPERINTENDENT.

LOUISIANA STATE SEMINARY OF LEARNING AND MILITARY ACADEMY, }
January 1, 1868. }

To His Excellency, H. C. Warmoth, Governor of Louisiana,
and ex-officio President of the Board of Supervisors:

SIR—I have the honor to lay before the Board of Supervisors the following returns of this Institution for the year 1868:

- 1—Roll of Officers, Cadets and Employes. (A)
- 2—Report of Treasurer. (B)
- 3—Return of Property. (C.)
- 4—Reports of Commandant of Cadets, Surgeon and Professors. (D)
- 5—Return of Library. (E)
- 6—Returns of Apparatus, Cabinets, etc. (F)

The members of the Board of Supervisors, especially those of the Executive Committee, having so frequently visited the Seminary during the past year, and otherwise kept themselves so thoroughly advised of its condition, that besides the transmittal of these returns, nothing would seem necessary for me to do or say; yet, in conformity with law and custom, I beg leave to add the following remarks, embracing, to a great extent, a report recently made to your Excellency.

GENERAL CONDITION OF THE SEMINARY.

The seminary is not in good condition; it is suffering from the accumulated ills of the past two years. The State has not been able to carry out its obligations to the Institution, nor have the people had the means to extend it a sufficient private patronage. The interest on the bonds, held in trust by the State, has only been worth about sixty-eight cents on the dollar in United States Treasury notes, and the maintenance and tuition of a beneficiary cadet has cost about \$8 75 per month more than could be realized from the Auditor's warrants. The library, apparatus and cabinets have not kept pace with the world's advance in literature and science; nor, indeed, could much necessary building and repairs be done. Rather a dark

picture, it must be confessed, for the State School of Louisiana! But has it no bright side? Is there no hope? Yes; notwithstanding all its misfortunes, the inevitable result of the deranged condition of the finances of the State which has caused us to lose \$31,820 96 of discount, and the poverty of our citizens who could send us only sixty private cadets, the seminary has promptly met most of its current expenses, and its creditors having the utmost faith in its vitality and ability, sooner or later to pay all its obligations, will continue to extend it all the aid in their power; so that the institution enters upon the new year confident of success and of continued usefulness to the people of Louisiana.

We hope, therefore, that the Board of Supervisors and the public will not disapprove of the manner in which the affairs of the institution have been conducted, and that our struggle through difficulties not of our own making, will so commend the seminary to the confidence and sympathy of the people and the Legislature as to insure its speedy relief from all embarrassment. The officers and professors have done their utmost to preserve the efficiency of the school; and to them it is gratifying to know that, in the midst of the trials and dangers, the gloom and despondency which have well nigh destroyed the spirit and energies of the South, *here* in Louisiana, under *their* guidance, have been life, activity and progress! One hundred and seventy-nine youths have been under their instruction, many of whom have attained a high degree of scholarship, and are an honor to the seminary and to the State. In some respects the institution is in much better condition than ever before. It has *now* for the first time in its history a *senior* class of eight members, all of whom are expected to graduate at the close of this session in June next; and once its graduates begin to take their places as citizens in the State, they will feel a pride and an interest in its welfare, such as none others can feel. But even better than that, having withstood, since its incipency, nearly every conceivable element of destruction, will it not be believed that the Seminary is destined to fulfill the intention of its founders, and to be henceforth, as its name implies, Louisiana's *nursery* of learning.

Such is the status of the school at the close of 1868. Not without hope that it can soon pay all its debts, stronger and more self-reliant from the difficulties it has successfully encountered, and with the firm conviction that having merited the approval of the people of Louisiana, it will receive the full extent of their assistance, it begins the new year under the most happy auspices,

Hon. R. W. Futch of the Senate, and Hon. J. T. Hanlon of the House of Representatives, have recently, by order of the Legislature, inspected the institution. What is *their* opinion of its condition, I presume the public will soon be informed.

For most opportune assistance, at several critical times, the thanks of the institution and of the public are due Gen. Buchanan, the late Commander of this District, His Excellency the Governor, the Hon. Mr. Conway, Superintendent of Public Education, and to W. C. Black, Esq., member of the Board of Supervisors from New Orleans. Without the aid of the latter gentleman, both in act and counsel, the exercises of the seminary would, in all probability, have been suspended.

FINANCES.

Besides the Treasurer's report of receipts and expenditures, it may not be amiss to say that the *income of the seminary* is derived from the following sources:

(a) The annuity or interest at 6 per cent. per annum on the seminary bonds, amounting to \$137,000, held in trust by the State, \$8,220 00.

(b) The appropriation for the maintenance and tuition of ninety-eight beneficiary cadets, at \$40 00 each per month for a session of ten months, \$89,200 00.

(c) The fees of private cadets (the average number since the war being ninety), at \$410 00 each per session of ten months.

The State pays in its depreciated currency, worth during the past year about sixty-eight cents per one dollar, both the annuity (interest on the bonds) and the appropriation for beneficiary cadets; and *just here has been all our trouble*. It was estimated two years ago that the maintenance and tuition of a cadet would cost the institution forty dollars per month for a session of ten months. A private cadet now pays forty-one dollars per month in United States Treasury notes. The accompanying *Tabular Statement (G) of Monthly Expenses* shows an actual outlay, per month, for *each* cadet during 1868 of thirty-five dollars and ninety-six cents, not including inevitable contingencies, which will slightly increase that amount. Each beneficiary cadet, therefore, costs the seminary about eight dollars and seventy-five cents more per month, in United States Treasury notes, than the State pays for him; and as this condition of things existed *last year as well as this*, and as the number of private cadets was *small then, as*

well as now, the only hope of meeting the losses of the institution, thus incurred, lay in our annuity of eight thousand two hundred and twenty dollars for which we have realized only sixty-nine and a half cents on the dollar. The close of the year has, therefore, shown a balance against us of four thousand three hundred and twenty-four dollars and forty-three cents, not including valuable stores of provisions, text books, etc. on hand.

But with the heavy average depreciation during the year of about thirty-two per cent. on all our State funds, and a small number of private cadets to represent our resources, on the one hand; and on the other hand, with such means to preserve the efficiency of the seminary, that it might well subserve the high educational purpose for which it was designed, and be well worthy of Louisiana; to effectually accomplish that object by maintaining a very large and expensive academic board, was a problem of no little difficulty. For the last two years the seminary has barely been able to keep body and soul together. Much necessary work of enlargement and improvement had to be deferred; the library, apparatus, cabinets of minerals and fossils should be largely increased; the main building needs some repairs; three professor's houses should be erected; several out houses are badly wanted, and something should be done towards beautifying the grounds, which are naturally so rough and unsightly.

The seminary, then, is in great need of funds; and it is to be hoped that the Legislature will come liberally to the relief of an institution which has struggled so manfully in its own behalf. That his excellency, the Governor, whose first official act, as the Executive of the State, was in furtherance of the interests of the seminary, and who boasts that he is the representative of that great *people of progress* whom no obstacles, however formidable, can deter; whose bidding steam and electricity do, and who build railroads and found schools without number, will fail to commend us most favorably to that body, I cannot for one moment believe. The board will please observe that the largest portion of the debt is due the professors and employes, who cannot be too highly commended for clinging to the fortunes of the school, when, frequently, it has, by no means been certain that they would ever be paid.

Regarding the time and mode of the payment of the fees for tuition and board, I think the seminary stands in its own light in a

business point of view. The money matters of a school must be conducted like those of any other enterprise; and to demand *cash* payments *in advance* from a planting community at a time when the *crops are growing*, and no one has a dollar or any credit, is a suicidal policy. I would, therefore, most earnestly recommend that in payment of all fees by individuals, the superintendent be authorized to receive either cash in advance, discounted at eight per cent, or *accepted drafts* on any reliable house in New Orleans, payable (for the several terms for which payment is now made in advance at the close of the terms) December 31, March 31 and June 30. I know that the present rule of *cash* payments, *in advance*, has very materially injured the school.

The accompanying statement of monthly expenses (G) shows that as long as the currency of the country continues so badly depreciated, it will be impossible to reduce the fees of admission. With so large a corps of professors (and it could not well be less, considering the grade of the school,) the Board of Supervisors cannot hope to lessen the current expenses of the seminary. I think it would be well not to delay longer having cashed the warrant for \$9,800 00 held as security by the Citizens' Bank for the payment of its debt. To have no use of that warrant while paying interest on \$9,000 00 is ruinous.

It is gratifying to announce to the board that the late Hon. Jesse A. Bynum, of this parish, formerly a distinguished member of Congress from North Carolina, has bequeathed to the seminary the handsome sum of \$6,000 00 to endow, in part, "a professorship of Rhetoric." The bequest will be contested, I am informed, before the law, and the board should take immediate action to protect the interests of the seminary, and to carry out the benevolent intention of the donor, who, for several years, was one of its supervisors. May this the *first*, be not the *last*, tribute of intelligent wealth for the advancement of the noble purpose of this institution.

BUILDINGS, REPAIRS, REFITTING, ETC.

Please bear in mind that the buildings, as a whole, such as should have been built to complete the establishment, have never been erected. When the school was first opened by General Sherman in 1860, only the main college building, not altogether finished, had been erected. Three professor's houses and a few inadequate out-houses have since been added. The main building, originally of bad

Construction, and continually subjected to rough usage, now stands in need of some repairs, say to the extent of \$5,000 00. At present there are seven professors with families, and for their proper accommodation, it is absolutely necessary to have at least three more good houses, costing each, say \$5,000 00. Additional quarters for servants, a good stable and bath-house should be built. There should also be an enlargement of the gymnasium. For all of which \$5,000 00 would, perhaps, suffice.

The above improvement and repairs are, I think, absolutely necessary now. It is also very desirable to have, as early as practicable, one or perhaps two extensions of the main building, so as to provide for a suitable dining-room and kitchen, and a large chapel and commencement hall. The halls now used for these purposes are entirely too small. Those extensions would require a heavy expense of, perhaps, \$20,000 00. Should the legislature take this matter under consideration, I would suggest the propriety of requiring the State Engineer, Major Freret, who is also an excellent architect, to furnish plans and estimates.

It would also be well for the State and the parish of Rapides together, to construct a good road to Alexandria, about three miles distant. The present road is in very bad condition, and always has been a disgrace to all parties concerned.

During the past year only such building, repairing, etc., as could not be dispensed with, have been done. A good frame one-story bake-house and servants' room, forty by twenty feet, and three small privies have been built; a well (twenty-seven feet deep) dug, and some minor repairs done to the main building and professor's houses. Very little could be done in improving the grounds. A good deal of the debris of the old brick kilns has been removed, and used in grading immediately around the main building; and a graded carriage way, thirty feet wide and about three hundred yards in length, from the front of the main building in the direction of Alexandria, has been nearly completed. Also some ornamental trees have been planted. But really at the slow rate we have progressed in the last two years, it would take a century to put the grounds in order. At present their wretched condition speaks very badly for the *taste* of the institution. Rev. Father Bellier has, at his own expense, greatly improved the employes' house assigned him as a dwelling. He has also cleared much ground around it, enclosed a large garden, making

the place quite habitable and himself very comfortable. I think as soon as the board is able, the Father should be compensated for his outlay, which has materially improved the public property.

The buildings should be better protected against fire. Two large tanks on the top of the main building and a force pump and hose would be sufficient. It would also be well to have them insured. The seminary, it is very evident, can do nothing towards erecting additional buildings, etc., and otherwise enlarging its sphere of usefulness, as long as it must keep up a perpetual struggle for its very existence; and its pecuniary difficulties having been brought about by the depreciation of the State funds, I would most earnestly beg your Excellency and the Board of Supervisors to consider the propriety of recommending to the Legislature the necessity of refunding to the seminary the amount of that discount for the past two years, thirty-one thousand eight hundred and twenty dollars and ninety-six cents, as set forth minutely in the accompanying statement (H). It is very clear that if the annuity and other appropriations of the Legislature had been paid, as was designed, in United States Treasury notes, the seminary would have had sufficient means to provide itself with much that it now stands so greatly in need of. Another thing is very certain: Louisiana has here to-day a sound basis upon which to build up one of the largest and best institutions of learning in America. Will she avail herself of it? Let her people, her Legislature and her Governor answer!

ACADEMIC BOARD.

Dr. F. V. Hopkins, the professor of Chemistry and Surgeon, assumed his duties at the beginning of this session in September last, and Professor J. M. Boyd resumed his chair of Natural Philosophy October 13. With those additions the faculty is very full and able, consisting of eight professors, one instructor in book keeping and writing, and five assistant instructors in Mathematics, Latin, English and French, selected from among the more advanced cadets, chiefly the beneficiaries. To give the board a more definite idea of the respective duties of the several professors and instructors, a copy of the Time Table (I) is respectfully forwarded.

Professor J. M. Boyd's health is very delicate, and at any moment he may be compelled to relinquish his position.

I beg leave to congratulate the board on its selection of Dr. Hopkins. Besides giving every attention possible to the sick, he is also

a most admirable instructor. Thoroughly devoted to scientific study, he is almost continually in his laboratory, and, in a short while, his high attainments must reflect great credit on the institution, as well as upon himself. The board will please bear in mind that Dr. Hopkins is paid less, comparatively, than the other professors. As soon as possible, he should receive the same salary as his colleagues. So able and faithful an officer should be better rewarded.

After the resignation of Dr. Wilson in February last, and until the arrival of Dr. Hopkins and Professor J. M. Boyd, Colonel Samuel H. Lockett had charge of the class in Chemistry and Natural Philosophy, besides his own classes in Engineering. That fact, with the further fact, that he is one of the ablest of West Point mathematicians, should convey some idea of the value of his services to the Seminary. They are simply invaluable, and I think it a pity that the precious time of so gifted a young man should be wasted in the mere drudgery of looking after the conduct of a parcel of boys, in the capacity of commandant of cadets; and as he is anxious to devote his whole time to scientific study, it would be well to gratify him by relieving him of the duties of commandant of cadets, as early as practicable.

A professor of Greek and German should be appointed, not later than June next. Mr. William A. Seay, who for some time past has so ably filled that chair *temporarily*, declines to accept it permanently; but he will remain on duty, as now, if the board wish, till the close of the session. For his valuable services during the last two sessions, the Seminary is much indebted to Mr Seay.

It would be well to give the Professor of Mathematics an assistant. That professor is also the superintendent, and his duties are becoming too numerous to enable him to attend to all properly. He can do without an assistant till the next session, when it is hoped that some one of the bright beneficiary cadets will receive the appointment; and, all things else equal, that class of cadets should have the honors of the seminary.

In the other Professorships I have no changes to suggest, and of the worth of Professors Bellier, Boyd, J. M., Palmer, and McAuley, the board is too fully apprized to render necessary any further communication from me. Isolated here in the pine woods, seldom leaving the grounds of the school, all the professors may be said to be imbued with but the one spirit, to attend strictly to their duties; and relying upon themselves and the cadets for society, makes all, as

it were, but one large family, whose members dwell most harmoniously and pleasantly together.

As assistants, doing the very light duty of one hour per day, cadets Eady, Gassie, Grimes, Nicholls, Packard and Pierson have been engaged; and it is most gratifying to observe with what ability these young gentlemen, of our own training, conduct their classes. Should the institution be equally successful with the other cadets entrusted to its charge, the people of Louisiana may rest assured that, in a few years, there will be in the State many able native teachers.

CADETS.

One hundred and seventy-nine cadets have been in attendance during the past year, one hundred and nineteen beneficiary, and sixty private cadets, and there are now present one hundred and thirty-two cadets; ninety-six beneficiary and thirty-six private cadets.

The small number of private cadets is much to be regretted, but is due mainly, I think, to the poverty of our people. That our private patronage will be greatly increased next year, I have no doubt. Already I have been notified of the intended matriculation of several in January; nor is it unreasonable to expect that the bountiful crops of 1868, will materially aid schools as well as all other branches of industry and enterprise.

But the *real* cause of our small patronage lies deeper than the seasons and the crops. It is truly *radical*. Until our unfortunate State catches the spirit of the age in which we live, until her material prosperity is firmly re-established on the basis of law and order, peace and quiet; until every drone within her borders, whatever be the color of his skin, is made to earn an *honest* living by the sweat of his brow; until her thousands of waste acres are the happy homes of the industrious, the enterprising and the thrifty; until railways and telegraphs lead from her magnificent city to every portion of her territory, and the church and the school house are in every township; *then*, and not till then, will this institution have its full complement of students; for not till then will Louisiana attain her full prosperity, and be worthy of her matchless geographical and commercial position.

"Give us railroads," should say the teacher and the preacher here in the pine woods, no less than the merchant and the mechanic in

New Orleans. Once *they* are built, along with immigration, trade and commerce, will come civilization, education and religion.

The progress of the cadets in their studies, as well as their health and conduct has, in general, been very good. Now and then, but very rarely, is to be found one who shows no disposition to learn, or, perhaps, to behave himself properly; but the strict rules of the seminary soon relieve his fellow cadets of his bad example. For a more definite idea of their conduct and health, the Board is respectfully referred to the report of the Commandant of Cadets, (D a) and of the Surgeon, (D b) and the accompanying reports (D c) of the Professors will give in detail their advancement in study. I regret that the necessity of forwarding the annual report to the Legislature much earlier this year than usual, will prevent the *result of the intermediate examination* in January, from being laid before the Board and the public till June next. The senior class has already passed the *final examination for graduation* in mathematics, a copy (K) of which is accompanying. The system of prize examinations adopted last session is having a most beneficial effect; and I beg leave also to forward copies (L) of the prize examinations in June last in mathematics, Latin and English, and of the prize oration. All of which, considering the fact that at the time they were given, there was no higher class than the *junior*, speak well for the scholarship of the competitors. Those prizes were borne off, respectively, by cadets S. C. McCormick, R. W. Nicholls, George M. Haden, and T. B. Edwards.

I would most respectfully commend those examinations and the reports of the Professors to the earnest consideration of those misguided citizens, who, though intelligent and patriotic, having led themselves through misconceived impressions, really to believe that nothing good can come out of this Nazareth (Louisiana), have, much to their own regret and to the injury of the best interests of their State, sent their sons to *other States* to be educated—some of them even to learn to read and write! It is to be hoped that Louisiana schools will hereafter have more of their help and less of their commiseration.

BENEFICIARY CADETS.

The State is empowered to send ninety-eight beneficiary cadets, nearly all of whom have been continually present during the year.

One of the most meritorious of the beneficiaries, cadet Hilton

Spring, of the parish of St. Tammany, died at his home in September last. His death was a great loss to his family and to us.

Five of them, I regret to say, cadets Braud, Doyal, Glenn, Hebert and Milliken, after remaining at the seminary one or two years, have left without sufficient cause, or, in other words, have failed to carry out the sacred obligations of the law under which they were appointed. Such conduct is highly improper, and cannot be too strongly condemned by the public; and I trust the Board of Supervisors will take such steps in the matter as will protect the interests of the State and of this institution. The meritorious cannot be properly rewarded, unless the undeserving are justly punished.

Two other beneficiaries have failed to return to the seminary after being allowed to visit their homes, cadets E. S. Taylor and W. S. Moore. Both of these young gentlemen, as well as their relatives and friends, have assured me that they are so *poor* that they cannot clothe themselves; and considering their fine character while here, I have made no record against them, except "dismissed for continued and unauthorized absence;" and I would recommend to the board not to consider them in the category of the five above mentioned.

But as a class the beneficiary cadets are a most excellent set of young men, and cannot be too highly praised for their good conduct and studious habits. Four of them are of the *senior class*, and are now acting Assistant Instructors. Should they graduate, as is expected in June next, they must by law become *teachers in the State for two years*. This feature makes the seminary, in fact, the *State Normal School* for the education of male teachers.

It is to be regretted that the beneficiaries are not farther advanced in their studies when they enter the institution; but the very inadequate school facilities in the parishes, make it necessary for the standard of admission to the Seminary to be very low. May we not hope that some good practical plan of public education for our State will soon be put in operation? Then it would be better to have the State or beneficiary cadets appointed by the parish or district school boards as a reward, in part, for *superior intellectual capacity*, instead of being selected as now, wholly on account of *indigence*, by the police juries, whose members take no special interest in matters of education.

The beneficiaries from New Orleans are generally more advanced in their studies than those from the country; but occasionally we could not congratulate the Board of School Directors of that city

upon their appointments, as regards either their acquirements or conduct. A little more care in the selection of the beneficiaries, on the part of those to whom the law entrusts that high privilege, would avoid endless trouble here.

I would respectfully suggest that the Legislature be requested to so amend the beneficiary law (Act No. 131, approved March 28, 1867), as to allow a cadet each to the newly formed parishes of *Iberia and Richland*. As the appropriation for the maintenance and tuition of the beneficiary cadets expires December 31, 1868, it is absolutely necessary that the Legislature make provision for their support as early as possible. The institution relies most certainly on the renewal of the appropriation; otherwise to obey the law under which those cadets are appointed, is to speedily destroy the seminary. On account of the beneficiary feature of the institution, it had hoped that it would have received some assistance before this time from the *Peabody fund*. Our efforts to that end have all, thus far, proved failures, and while we beg leave to dissent from the views of Dr. Sears, the general agent of that fund, we shall be content, if what we think should have been entrusted to the seminary, is used for *primary education in Louisiana*. The sub-agent for this State is the Hon. Mr. Lusher, the *late* Superintendent of Public Education. Respected and beloved by all the citizens of the State for his ability and purity, no one could but know that he would use Louisiana's portion of Mr. Peabody's munificence for the greatest possible good of her uneducated poor.

COURSE OF STUDY.

To the course of study has been lately added Constitutional and International Law. Although the range of literary and scientific study, as pursued here, is very extensive, being surpassed by very few of even the older institutions of learning in our country; yet, besides the suggestions of last year, I think it would also be well to take steps looking to the early introduction, as *optional* studies, of the Hebrew and Sanscrit languages. Science, in its true sense, embraces the intellectual and the moral as well as the physical, and the proper development of the mind cannot be attained by the study of the latter alone. And notwithstanding the boasted progress of late years of physical science, literature modestly and quietly has kept pace with, if not outstripped it.

It becomes an institution of this kind not to be unduly influenced by any extreme ideas, but in a catholic and liberal spirit to attempt to cull the good from every system of education. I am firmly of the belief that the youthful mind of this country can receive no better training than from the careful study of the Latin and Greek Classics and Oriental Literature; and as the faculty of speech is one of the wonderful gifts of God to man, and therefore an essential part of His works, nature and truth, the proper study of language ought not to be discarded as useless in this or any other age. It would be ridiculous for the Geologist, who goes into extacies of joy over the fossil trace of an insect, long since extinct; or a Mathematician who puzzles his brain to prove that a *crooked* line is *not* the *shortest* distance between two points, to make light of the searching labors of an Etymologist or Metaphysician! In the eyes of the *practical* man, both are fools, and had better be at the plow or the anvil. But education has a nobler aim than making dollars and cents; and I trust the Board of Supervisors will not take the *utilitarian* view of the matter. All may not be able, for one reason or another, to become good linguists any more than every one can be a good mathematician; but all who wish to devote themselves thoroughly to any branch of study, be it literary or scientific, should have *here* the opportunity. May we not hope, by more skillful teaching to save the time of the student, and enable him to enlarge his field of study?

APPARATUS, LIBRARY AND CABINETS.

A binocular microscope of great power and excellent workmanship, together with some minor articles, was all that could be added to the Apparatus; nor would our means allow the purchase of but few books, and the number of donations has been small. Some maps, charts, etc., have been provided, mostly compiled by Col. Lockett and Mr. Robinson.

Although the Apparatus and Library, (now counting over four thousand volumes), will compare favorably with those of the colleges generally in the South, yet they are very deficient, and should be much increased; and by all means should the halls and recitation rooms be decorated with instructive pictures and other works of art, to improve the intellectual and refine the tastes of the students, instead of having them, as now, gazing day after day at the blank nothingness of bare walls.

For the Library, I have taken the responsibility of requesting Colonel Lockett, who, with his many other accomplishments, is an excellent portrait painter, to prepare life size portraits in oil of General G. Mason Graham and General W. T. Sherman. The latter, though now so prominent in this country, and so famous the world over, was our first Superintendent, and whatever vitality and endurance the seminary has exhibited in its recent struggle for existence, may be said to be due to the vigor and energy which he infused into the institution during his management. He has been absent several years, but his spirit has never ceased to hover around the place ; and while he himself, with the ruthless hand of war, was destroying whole States of the South, his standing request was filed with the commander of this District, "not to destroy the seminary."

Gen. Graham was the President of the Board of Trustees, who were charged with the location and erection of the buildings. He was also, for several years, Vice-President of the Board of Supervisors ; so that his name and that of the seminary are almost synonymous, and he is often called the "*Father of the Seminary*." It was, therefore, but due the institution that portraits of two such benefactors should be secured. Those portraits are finished and now adorn the library ; and I trust the board will approve my action, and in some way compensate Col. Lockett for his admirable works of art.

I also think that, as the Hon. M. Ryan, while a member of the Legislature, drafted and secured the passage of the bill, by which the seminary was founded, a portrait of him, too, should be secured. That surely would be but a small token of gratitude to that distinguished gentleman, to whom the cause of education in Louisiana is so much indebted.

In enlarging the cabinets of minerals, etc., we have been more fortunate, during the past year, than with the library and apparatus. Many valuable specimens of minerals, fossils, Indian relics, plants, etc., have been added by private donation chiefly from Louisiana, but some from the adjoining States and Virginia. For the list, in detail, and the names of the contributors, please refer to accompanying Report. (F d).

It will be seen that the cadets are taking a lively interest in this matter. They alone would, in a few years, contribute largely to our cabinets.

It may not be amiss for me to mention the names of those to

whom we are most indebted for contributions: Professors McAuly, Lockett and Boyd, J. M., Albert Baillio of New Orleans, R. S. Jackson, of Claiborne parish, A. B. Ragan, of Winn, Doctors J. S. Smith, of West Feliciana, and Campbell, of Concordia; Dr. Geo. E. French, Major F. Seip, and James R. Waters, of Rapides; Thos. J. Boyd, Wm Kohler, and David S. Forney, of Virginia; and among the cadets, Fulford, of Jackson parish, Eady, of St. Helena, Easton, of Orleans, Barrow, of Pointe Coupée, and Smith of West Feliciana.

The Smithsonian Institute, at the instance of General Sherman, has promised to furnish the seminary with a collection of shells, etc. Notwithstanding the heavy official duties of that distinguished gentleman, he finds time to take a lively interest in the welfare of this institution.

DISCIPLINE.

The discipline is substantially the same as it was last year, and I would invite your most earnest consideration of that portion of my report for 1867, relating to this subject. Page 10.

We have had, generally speaking, during the year, very good order, but it was owing more to the good management of Colonel Lockett, the commandant of cadets, aided somewhat by the vigilance, of the other professors, than to our system of government, which, *military* in part, and partly *civil*, is, on the whole, very bad. The commandant of cadets is fully of this view. Please refer to his report (D. a.)

For the proper maintenance of discipline and good order, I think it absolutely necessary that the military feature of the seminary should be restored, *in full*, as early as possible. There should be, at least, it seems to me, no objection to allowing the use of the *uniform* and such *drill* as can be done *without arms*; and as Louisiana is now a State in the Union, and the law requires this to be a perfect military organization, it would seem to be a question with the executive of the State alone, how far the full military organization of the seminary can be restored, without danger to the best interest of the whole State. If nothing else can be granted at this time, simply the use of *uniform*, without the drill, would greatly benefit the institution; and I sincerely trust that His Excellency, upon the recommendation of the Board of Supervisors, will not deem it inconsistent with his duty to grant at least that privilege.

RELIGIOUS EXERCISES.

The Chaplains hold prayers daily, and divine service every Sabbath, which the cadets may attend, at their option. Each Chaplain has also a class in religious instruction. For all of which exercises the cadets show a profound respect, many of them being devoted church members.

The public cannot commend to highly the wisdom of the board in establishing the chaplaincies. It is to be regretted that the institution has no halls suitable for chapels; the two rooms now used for that purpose being entirely too small, and otherwise unfit.

Besides the regular Chaplains of the Seminary, Ministers of the Gospel, generally, are invited to visit us; and during the past year the Right Rev. Bishop Wilmer and the Rev. Mr. Bakewell officiated at the institution.

THE MESS HALL.

There has been no material change since last year, in this department, except, perhaps, some improvement in the quality of the food, and a small reduction of expense, as seen by reference to the statement of monthly expense, (G). I doubt if the cost of boarding a cadet will ever be less than it is now. We cannot hope to get provisions much cheaper, and labor will soon, most probably, be much higher.

It is this department that must ever pay dearly for this location of the school, however great its advantages in other respects. Situated in these pine woods, which are nearly as barren as the great desert of Sahara, cut off by the river from even the little vegetable market at Alexandria, we cannot subsist on supplies chiefly from Illinois or Missouri, without heavy cost. Such is our misfortune, and we must make the best of it, till railroads or better navigation supplies us more cheaply from North Louisiana, Texas and Arkansas.

Some alluvial land near by should, by some means, be purchased for a garden.

Mr. S. B. Robinson has still the immediate management of the Mess Hall, without whose invaluable services, generally, it would have been very difficult to conduct the business affairs of the seminary successfully. He has done much more duty than could have been reasonably expected of him; and I would earnestly recommend

that the board do itself the justice to reduce his labors and raise his salary.

GRANT OF LAND BY CONGRESS FOR AGRICULTURAL AND MECHANICAL COLLEGES.

Please read the paragraph under this head in my annual report for 1867, page 12. I think it necessary to take steps at once to secure to Louisiana this grant of land, and I believe for reasons set forth in the report referred to, that those schools should be attached to the seminary. The object of the law in enacting those colleges could be readily attained here, and they would add very greatly to the scientific character of this institution.

PHYSICAL HISTORY OF LOUISIANA.

Last summer I addressed the accompanying printed circular, (M) to many of the leading citizens of the State, with the view of obtaining valuable information, of a scientific character, from all parts of the State. Several persons have responded to the call, and others will, no doubt, do likewise during the coming year; but the seminary, if it had the means, should undertake a thorough *Topographical and Geological Survey of Louisiana*. With a little aid from the State it could be accomplished after this manner.

Let the Legislature make it obligatory on the seminary to make such surveys by requiring its Professor of Engineering and the Professor of Chemistry, etc., to spend at least four months of every year in the field, till the work is satisfactorily finished; and for this *extra* service, let each of those Professors be paid one thousand dollars, and for traveling and other incidental expenses, each, five hundred dollars. Col. S. H. Lockett, the Professor of Engineering, and Dr. F. V. Hopkins, the Professor of Chemistry, etc., are well qualified to enter upon so important a work, being thoroughly scientific, young and active, and full of zeal for the undertaking.

CONCLUSION.

I have tried to give a general idea of the condition of the seminary, especially of its *defects*, with the hope that attention once drawn to them, they may, sooner or later, be remedied. With proper care and attention to its wants, this institution must soon become a great

school, reflecting much honor upon Louisiana, and doing much good to all classes of her citizens. God grant that such may be the result of our labors.

With the following *resume* of such appropriations as I think the Board of Supervisors should most earnestly ask the Legislature to make for the present relief and better efficiency of the seminary, this report will close:

1. Appropriations *absolutely necessary* for the present relief of the seminary :

(a) For the maintenance and tuition of ninety-eight beneficiary Cadets, for the year 1869, appointed under Act 131 of the Legislature, approved March 28, 1867, each forty dollars per month, for a session of ten months	\$39,200 00
(b) For reimbursing the seminary for <i>discount</i> on State notes and warrants, for the years 1867 and 1868, as per accompanying statement (H).....	31,820 96
(c) For erecting three Professor's houses, say.....	15,000 00
(d) For repairs to main College building.....	5,000 00
(e) For the erection of out-houses, etc.....	5,000 00

Total necessary appropriations.....\$96,020 96

2. Appropriations *not absolutely necessary* at this time, but very *desirable* for the better efficiency of the institution:

(a) For extension of the main college building, say...	\$20,000 00
(b) For enlargement of apparatus, cabinets and library	10,000 00
(c) For geological survey of the State (annually).....	3,000 00

Total desirable appropriations.....\$33,000 00

Respectfully submitted,

D. F. BOYD,
Superintendent.

ROLL OF THE OFFICERS AND CADETS
OF THE LOUISIANA STATE SEMINARY OF LEARNING AND MILITARY
ACADEMY DURING THE YEAR 1868.

SESSIONS 1867-'68 AND 1868-'69.

OFFICERS:

DAVID F. BOYD, Superintendent and Treasurer.
SAMUEL H. LOCKETT, Commandant of Cadets.
JAMES W. WILSON, M. D., Surgeon to February 10, 1868.
JAMES S. FISH, M. D., Acting Surgeon from February 10, 1868,
to June 30, 1868.
F. V. HOPKINS, M. D., Surgeon from September 1, 1868.
REV. J. P. BELLIER, Roman Catholic Chaplain.
REV. E. P. PALMER, Protestant Chaplain.
S. B. ROBINSON, Business Agent.

ACADEMIC BOARD:

D. F. BOYD, Professor of Mathematics.
SAMUEL H. LOCKETT, Professor of Engineering.
JAMES M. BOYD, Professor of Natural Philosophy, absent, sick,
till October 13, 1868.
JOHN P. MCAULEY, Professor of Latin.
WILLIAM A. SEAY, Acting Professor of Greek.
REV. J. P. BELLIER, Professor of Modern Languages.
REV. E. P. PALMER, Professor of Moral Philosophy and English
Literature.
JAMES W. WILSON, Acting Professor of Chemistry to Feb'y 10, '68.
F. V. HOPKINS, Professor of Chemistry from September 1, 1868.
S. B. ROBINSON, Instructor in Penmanship and Book Keeping.
JOHN H. EADY, Assistant Instructor in Mathematics.
H. P. PACKARD, Assistant Instructor in Mathematics.
R. W. NICHOLLS, Assistant Instructors in Latin.
PIERRE GASSIE, Assistant Instructor in French.
T. L. GRIMES, Assistant Instructor in English.
JOSEPH PIERSON, Assistant Instructor in English.

C A D E T S .

No.	NAMES.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
1	Archer, Sylvester	Assumption	Septemuer 7, 1868	
2	Adkins, T. Y.	Texas	October 2, 1868	
3	Alex, J. C.	New Orleans	September 4, 1866	Resigned June 24, 1868, close of session.
4	Anderson, G. T.	East Feliciana	September 3, 1866	Resigned March 28, 1868.
5	Andrews, M. R.	Texas	September 18, 1867	
6	Bailey, Walter	New Orleans	September 7, 1868	
7	Barker, Frank	Lafourche	September 2, 1867	Resigned June 5, 1868.
8	Barron, Henry	Pointe Coupée	November 20, 1867	
9	Beatty, H.	Pointe Coupée	September 14, 1868	
10	Beatty, W. L.	New Orleans	September 7, 1868	
11	Berger, John	Terrebonne	September 18, 1866	
12	Berger, Robert	Caddo	September 22, 1866	
13	Blume, J. H.	Jefferson	September 1, 1867	Resigned January 19, 1868.
14	Bourges, L. L.	New Orleans	August 27, 1867	
15	Boyd, J. L.	St. Martin	March 16, 1867	
16	Boyd, T. D.	Virginia	October 13, 1868	
17	Boyd, Washington	St. Martin	March 16, 1867	Resigned January 24, close of session.
18	Braud, J. E.	Ascension	October 9, 1866	Dismissed June 1, 1868.
19	Briant, W.	New Orleans	September 2, 1867	
20	Bringier, L. L.	St. James	September 2, 1867	
21	Bringhurst, F. A.	Rapides	February 20, 1867	Resigned March 10, 1868.
22	Brooks, W. A.	New Orleans	September 6, 1868	
23	Brosnan, D. N.	New Orleans	September 14, 1864	
24	Brown, W. S.	Terrebonne	September 18, 1868	
25	Callham, D.	Avoyelles	November 24, 1866	

CADETS.—Continued.

26	Campbell, T. B.	Jefferson	October	6, 1868	
27	Campbell, W. P.	Concordia	December	5, 1867	
28	Canghlin, John	Natchitoches	October	9, 1868	
29	Chachere, Henry	St. Landry	September	2, 1867	Resigned June 24, 1866, close of session.
30	Compton, A. T.	Rapides	March	12, 1868	
31	Crandell, J. L.	Madison	November	18, 1867	
32	Crane, R. D.	New Orleans	September	2, 1867	Resigned June 24, 1868, close of session.
33	Dancy, Lafayette	Madison	June	20, 1868	Resigned June 24, 1868, close of session.
34	Decker, A. H.	Plaquemines	October	1, 1867	
35	Delahoussaye, T.	St. Martin	September	3, 1866	
36	Delouche, J. B.	New Orleans	September	2, 1867	Dismissed February 22, 1868.
37	Deslattes, J. L.	St. James	May	5, 1867	
38	Dinkgrave, J. H.	Ouachita	September	16, 1868	
39	Dorsett, Ornn	Rapides	January	3, 1866	Resigned May 23, 1868.
40	Doyal, J. W.	Franklin	October	1, 1866	Dismissed February 1, 1868.
41	Ducote, C. J.	Avoyelles	September	3, 1866	
42	Ducros, E. O.	St. Bernard	April	10, 1866	
43	Duntar, E. M.	East Feliciana	September	7, 1868	
44	Eady, John H.	St. Helena	May	28, 1866	
45	Easton, Warren	New Orleans	August	29, 1867	
46	Edwards, T. B.	Iberville	April	18, 1866	
47	Edwards, B. F.	Avoyelles	September	2, 1867	
48	Edwards, C. W.	Bossier	September	2, 1867	Resigned April 13, 1868.
49	Elmore, J. P.	Livingston	September	3, 1866	
50	England, G. W. H.	New Orleans	September	7, 1868	
51	Evans, W. C.	New Orleans	September	7, 1868	
52	Frazel, Max	Union	October	1, 1867	
53	Ferguson, J. I.	New Orleans	August	19, 1867	

CADETS.—Continued.

No.	NAMES.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
54	Ferguson R.....	New Orleans.....	August 19, 1867	
55	Finch, Humphrey.....	New Orleans.....	August 27, 1867	
56	Fitzhugh, S. R.....	New Orleans.....	October 18, 1866	
57	Flint, James.....	Rapides.....	January 8, 1866	Resigned May 10, 1868.
58	Fourny, J. V.....	St. Mary's.....	September 3, 1866	Resigned June 20, 1868, close of session.
59	Francis, F. W.....	Terrebonne.....	September 2, 1867	Resigned June 24, 1868, close of session.
60	Fulford E. A.....	Jackson.....	November 23, 1865	
61	Gallion, Z. T.....	Natchitoches.....	January 8, 1867	
62	Gassie, Pierre.....	West Baton Rouge	May 26, 1866	
63	Geren, J. P.....	Claiborne.....	September 3, 1866	
64	Glenn, D. S.....	Carroll.....	September 16, 1867	
65	Greene, C. J.....	Jackson.....	October 22, 1866	Dismissed October 1, 1868.
66	Greene, J. A.....	Jackson.....	October 22, 1866	Resigned June 24, 1868, close of session.
67	Grimes, T. L.....	Avoyelles.....	October 2, 1865	Resigned June 24, 1868, close of session.
68	Grush, Henry.....	New Orleans.....	January 6, 1866	
69	Gunby, A. A.....	Claiborne.....	November 30, 1867	Resigned June 24, 1868, close of session.
70	Guyol, F. A.....	New Orleans.....	September 3, 1867	
71	Guyol, S. L.....	New Orleans.....	September 3, 1867	
72	Hart, E. N.....	Orleans, right bank	September 7, 1868	
3	Hawkins, G. T.....	St. Landry.....	February 2, 1868	
74	Hayden, G. M.....	Washington.....	May 28, 1866	
75	Haynie, John C.....	Rapides.....	January 20, 1867	
76	Hays, W. L.....	Mississippi.....	September 10, 1868	
77	Hebert, Ignaré.....	Iberville.....	September 7, 1867	
78	Hillard, H. I.....	Texas.....	September 18, 1867	

CADETS.—Continued.

79	Hingle, R.	Plaquemines.	September 2, 1867	Dismissed February 22, 1868.
80	Hoffman, John J.	New Orleans.	September 3, 1866	Resigned June 24, 1868, close of session.
81	Hollingsworth, W. W.	Bienville.	September 2, 1867	Resigned June 24, 1868, close of session.
82	Holt, J. C.	Baton Rouge.	September 3, 1866	Resigned February 8, 1868.
83	Holtsberry R. C.	New Orleans.	August 27, 1867	
84	Holstein, R. C.	West Feliciana.	September 2, 1867	
85	Hunter, E. G.	Rapides.	September 6, 1868	
86	Inman, R.	Mississippi	September 10, 1868	
87	Jarreau, Lucien.	Rapides.	September 3, 1866	Resigned January 25, 1868.
88	Jewell, A. L.	Pointe Coupée.	September 7, 1867	
89	Johnson, C. K.	Rapides.	October 16, 1865	
90	Johnson, O.	Rapides.	September 7, 1868	
91	Kerr, C. M.	St. Mary's.	January 4, 1868	
92	Kerr, F. M.	St. Mary's.	November 24, 1866	
93	Knoblock, Gustave.	Lafourche.	September 2, 1867	
94	Lagarde, L. A.	Terrebonne.	September 18, 1868	Resigned June 24, 1868, close of session.
95	Lanaux, J. S.	New Orleans.	April 9, 1866	
96	Landry J. O.	Ascension.	September 3, 1867	
97	Larparent, H. L.	Terrebonne.	September 2, 1867	Resigned February 28, 1868.
98	LeBlanc, F. S.	Ascension.	September 9, 1868	
99	Lewis, C. C.	Tensas.	December 17, 1867	
100	Lewis, John M.	Rapides.	September 17, 1867	Resigned February 1, 1868.
101	Lewis, S. H.	East Baton Rouge.	September 3, 1866	
102	Lockett, H. W.	Alabama.	October 1, 1867	Resigned June 24, 1868, close of session.
103	Lowry, J. A.	Bossier.	September 3, 1866	
104	Lusk, A. A.	New Orleans.	May 7, 1866	
105	McCollam, H. A.	Terrebonne.	November 10, 1865	
106	McCormick, S. C.	Union.	October 13, 1866	

CADETS.—Continued.

No.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
107	McDonald, W. D.	Jackson.	September 2, 1867	
108	McEwery, H.	Onachita.	September 17, 1867	Resigned May 14, 1868.
109	Madere, Octave.	St. John Baptiste.	January 24, 1867	Resigned March 11, 1868.
110	Mather, Edward.	St. James.	June 3, 1867	Resigned June 24, 1868, close of session.
111	Mather, L. J.	St. James.	June 3, 1867	
112	Matthey, J. H.	New Orleans.	August 27, 1867	
113	May, J. W.	Union.	September 17, 1867	Resigned June 24, 1868, close of session.
114	Menge, Joseph.	Plaquemines.	September 3, 1866	
115	Messey W. O.	West Feliciana.	September 3, 1866	
116	Milliken, James.	Carroll.	September 3, 1866	Dismissed November 11, 1868.
117	Montgomery, T. F.	Carroll.	February 22, 1866	
118	Montgomery, V.	Carroll.	September 3, 1866	
119	Moore, W. L.	East Feliciana.	September 3, 1867	Dismissed October 1, 1868.
120	Moss, T. A.	Caldwell.	October 10, 1866	
121	Nicholls, R. W.	Assumption.	January 8, 1866	
122	Niles, J. R.	Lafourche.	September 3, 1866	
123	Ogilvie, A. F.	Caddo.	March 12, 1868	Resigned May 14, 1868.
124	Oliver, J. B.	Mississippi.	September 10, 1867	Resigned June 24, 1868, close of session.
125	O'Neal, Mitchell.	Onachita.	September 3, 1866	Resigned September 24, 1868.
126	Packard, H. P.	New Orleans.	April 9, 1866	
127	Parkerson, J. R.	St. Mary's.	August 31, 1866	
128	Pannele, F. F.	New Orleans.	September 2, 1867	
129	Pasquin, C. M.	Assumption.	May 2, 1868	
130	Petiss, W. K.	Morehouse.	September 10, 1867	
131	Peyroux, P.	New Orleans.	September 5, 1868	

132	Pierson, Joseph.....	Bienville.....	April 6, 1866	
133	Pratt, George K.....	St. Landry.....	November 28, 1865	
134	Pugh, Thomas.....	New Orleans.....	January 8, 1866	
135	Purnell, W. R.....	New Orleans.....	September 3, 1867	Resigned June 24, 1868, close of session.
136	Purves, George S.....	New Orleans.....	September 14, 1867	Resigned June 2, 1868.
137	Radesich, L. P.....	Winn.....	September 3, 1866	
138	Rainey, J. W.....	Texas.....	October 9, 1868	
139	Rausdell, John.....	Rapides.....	January 14, 1866	
140	Ranson, Norbert.....	St. Charles.....	March 30, 1868	
141	Rawlings, R. T.....	Catahoula.....	September 22, 1868	
142	Ringgold, J. H.....	Rapides.....	June 21, 1867	
143	Rin, Samuel P.....	Lafayette.....	February 1, 1867	
144	Roberts, N. R.....	Rapides.....	October 16, 1865	
145	St. Martin, H. V.....	St. Charles.....	April 28, 1866	Resigned February 3, 1868.
146	Sanford, T. T.....	Rapides.....	October 2, 1865	Resigned June 24, 1868, close of session.
147	Schmidt, F. O.....	New Orleans.....	March 12, 1868	
148	Schneider, P.....	New Orleans.....	September 7, 1868	
149	Scranton, G. W.....	Lafayette.....	November 9, 1868	
150	Smith, John.....	Bossier.....	April 9, 1868	
151	Smith, Joseph D.....	West Feliciana.....	November 20, 1867	
152	Spring, Hilton.....	St. Tammany.....	September 3, 1866	Died at home.
153	Stampley, P. D.....	Tensas.....	December 17, 1867	
154	Stith, W. B.....	New Orleans.....	January 12, 1868	
155	Street, G. C.....	Jefferson.....	September 2, 1867	
156	Stuart, C. D.....	New Orleans.....	January 6, 1866	Resigned January 29, 1868.
157	Stuart, R. S.....	New Orleans.....	September 2, 1867	
158	Stubbs, A. B.....	Jefferson.....	September 3, 1866	
159	Sutherland, E. W.....	De Soto.....	September 2, 1867	

CADETS.—Continued.]

No.	NAMES.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
160	Tarleton, G. D.	St. Landry.....	December 22, 1867	
161	Tapin, J. H.	St. John Baptiste.	September 7, 1868	
162	Taylor, E. L.	St. Landry.....	May 14, 1866	Dismissed February 5, 1868.
163	Tebault, R. R.	New Orleans.....	September 2, 1867	Resigned June 24, 1868, close of session.
164	Thompson, C. J.	St. Landry.....	October 18, 1868	
165	Tronard, Alcide.	Jefferson.....	September 3, 1867	
166	Trudeau, H. E.	Pointe Coupee....	December 10, 1866	Resigned February 12, 1868.
167	Veazie, E. P.	St. Landry.....	September 25, 1867	
168	Villivaso, W. N.	New Orleans.....	September 7, 1868	
169	Waddill, A. K.	East Baton Rouge	September 3, 1867	
170	Waddill, H. B.	Arcyelles.....	March 6, 1866	Resigned May 16, 1868.
171	Walmsley, G. L.	Natchitoches.....	October 11, 1865	Dismissed November 4, 1868.
172	Welch, S. N.	Concordia.....	September 8, 1868	
173	Whitworth, W. T.	Do Solo.....	September 22, 1866	Dismissed October 14, 1868.
174	Wilson, G.	Missouri.....	October 1, 1867	Resigned February 1, 1868.
175	Wilson, J. M.	Rapides.....	September 13, 1866	Resigned January 19, 1868.
176	Wilson, T. P.	St. Mary's.....	August 31, 1868	
177	Womack L. J.	Texas.....	October 9, 1868	
178	Wynn, Lewis.	New Orleans.....	September 2, 1867	Resigned March 10, 1868.
179	Zim, Lewis.	Franklin.....	September 7, 1868	

RECAPITULATION.

Total number of Cadets in attendance during the year 1868.....	179
State Cadets.....	119
Private Cadets.....	60
From Louisiana.....	168
From Texas.....	5
From Mississippi.....	3
From Missouri.....	1
From Alabama.....	1
From Virginia.....	1

D. F. BOYD,
Superintendent.

*The Louisiana State Seminary of Learning and Military Academy in
Account with D. F. Boyd, Superintendent and Treasurer.*

1868.

December 31—To amount paid for expenses as per accompanying abstract and vouchers.....	\$39,471 03	
To amount expenses of the Board of Supervisors.....	367 50	
To amount expenses of the re- pairs, refitting and improve- ments	5,988 56	
To amount expenses of the Li- brary and apparatus.....	1,707 85	
To amount expenses of the con- tingencies.....	1,133 67	
	<hr/>	48,668 61
To balance on hand.....		1,401 10

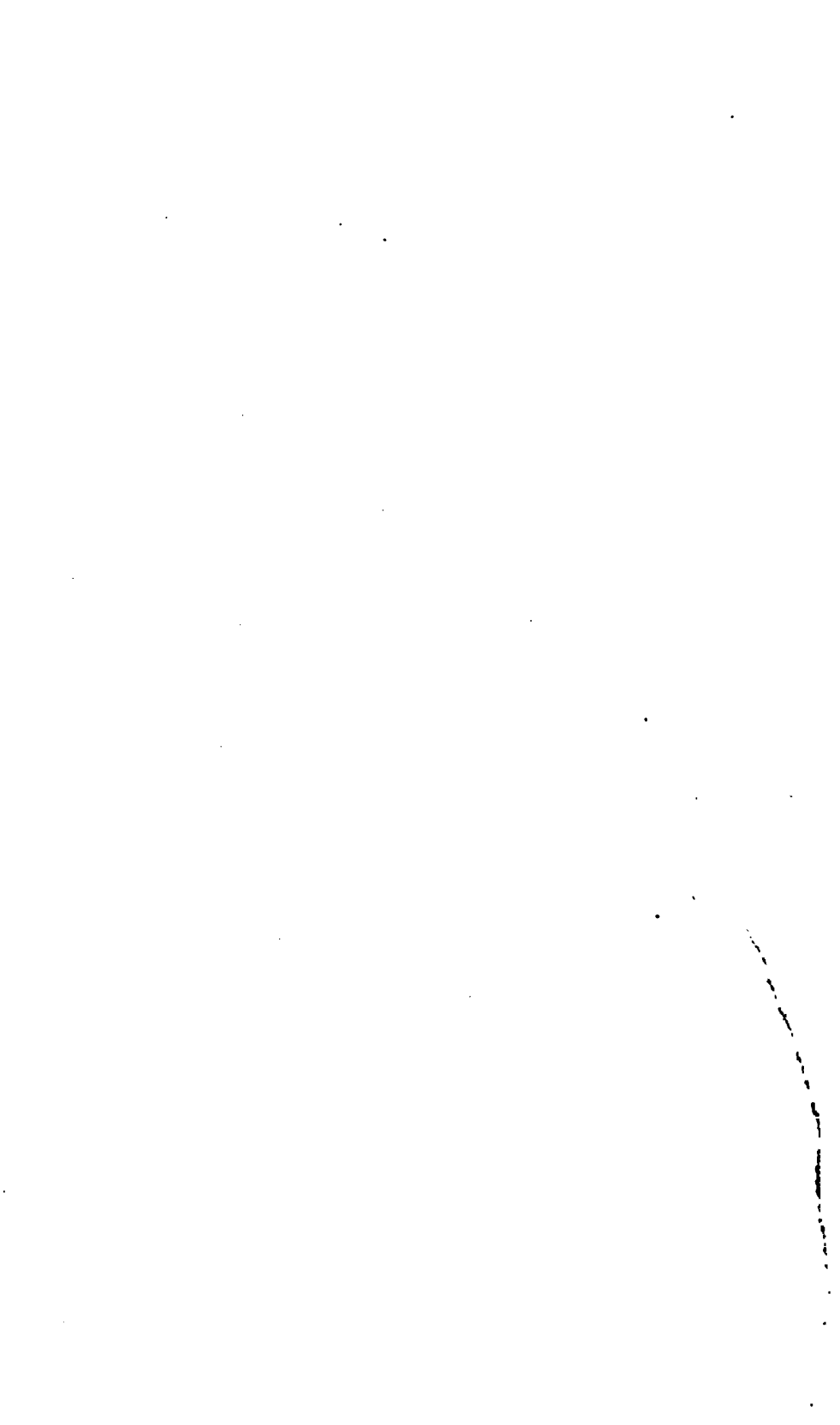
1868.

December 31—By balance on hand from last report.....		\$50,069 71
By amount received from pay cadets, session 1867-68.....		4,248 19
By amount received from pay cadets, session 1868-69.....		7,979 98
By amount State cadet warrant first quarter 1868, series 955, 973, 9800 @ 70c.....	6,860 00	6,116 67
By amount of annuity warrant of 1867, series 1128, 1143, 8160 @ 60c.....	4,896 00	
By amount Board Supervisors' warrant, 1000 @ 59½c.....	595 00	
By amount State cadet war- rant second quarter 1868, 9800 @ 68½c.....	6,737 50	
By amount State cadet warrant third quarter, 9800 @ 70c...	6,811 00	
By amount annuity warrant of 1868, 8160 @ 69½c.....	5,671 20	
By amount \$205 State notes at 65c.....	133 25	
	<hr/>	31,708 95
By amount sundry collections.		20 92
		<hr/>
		\$50,069 71

1869.

January 1—By balance on hand.....	\$1,401 10
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D. F. BOYD, Superintendent and Treasurer.



PAY OF OFFICERS AND EMPLOYES.

ACADEMIC BOARD.

	Per Annum,
D. F. BOYD, <i>Superintendent, Treasurer, and Professor of Mathematics</i>	\$3,000
SAMUEL H. LOCKETT, <i>Commandant of Cadets and Professor of Engineering</i>	2,500
DR. F. V. HOPKINS, <i>Surgeon and Professor of Chemistry</i>	2,000
REV. J. P. BELLIER, <i>Roman Catholic Chaplain and Professor of Modern Languages</i>	2,500
REV. E. P. PALMER, <i>Protestant Chaplain and Professor of Moral Philosophy</i>	2,500
JAMES M. BOYD, <i>Professor of Natural Philosophy</i>	2,000
W. A. SEAY, <i>Acting Professor of Greek</i>	2,000
JOHN P. McAULEY, <i>Professor of Latin</i>	2,000
S. B. ROBINSON, <i>Instructor in Writing and Book Keeping</i>	500
PIERRE GASSIE, <i>Assistant Instructor in French</i>	200 or \$20 per month,
R. W. NICHOLLS, <i>Assistant Instructor in Latin</i>	200 or 20 per month,
JOHN H. EADY, <i>Assistant Instructor in Mathematics</i> ...	200 or 20 per month,
H. P. PACKARD, <i>Assistant Instructor in Mathematics</i> ...	200 or 20 per month,
T. L. GRIMES, <i>Assistant Instructor in English</i>	200 or 20 per month,
JOSEPH PIERSON, <i>Assistant Instructor in English</i>	200 or 20 per month,

\$20,200

SUB-OFFICERS.

	Per Month with board.
S. B. ROBINSON, <i>Clerk and Business Agent</i>	\$100
One Assistant Storekeeper and Clerk.....	50
One Bugler.....	12

KITCHEN.

Three cooks, \$90; one baker, \$50; one dishwasher, \$14.....	154
---	-----

MESS HALL.

One head waiter, \$25; one pantryman, \$15; four waiters, \$56.....	96
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SEMINARY BUILDING.

Four employes, \$69; one lamp trimmer and attender on Surgeon, \$14.....	83
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LAUNDRY.

One clerk, \$28; four washmen, \$50; five ironers, \$50.....	128
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OUT DOOR EMPLOYES.

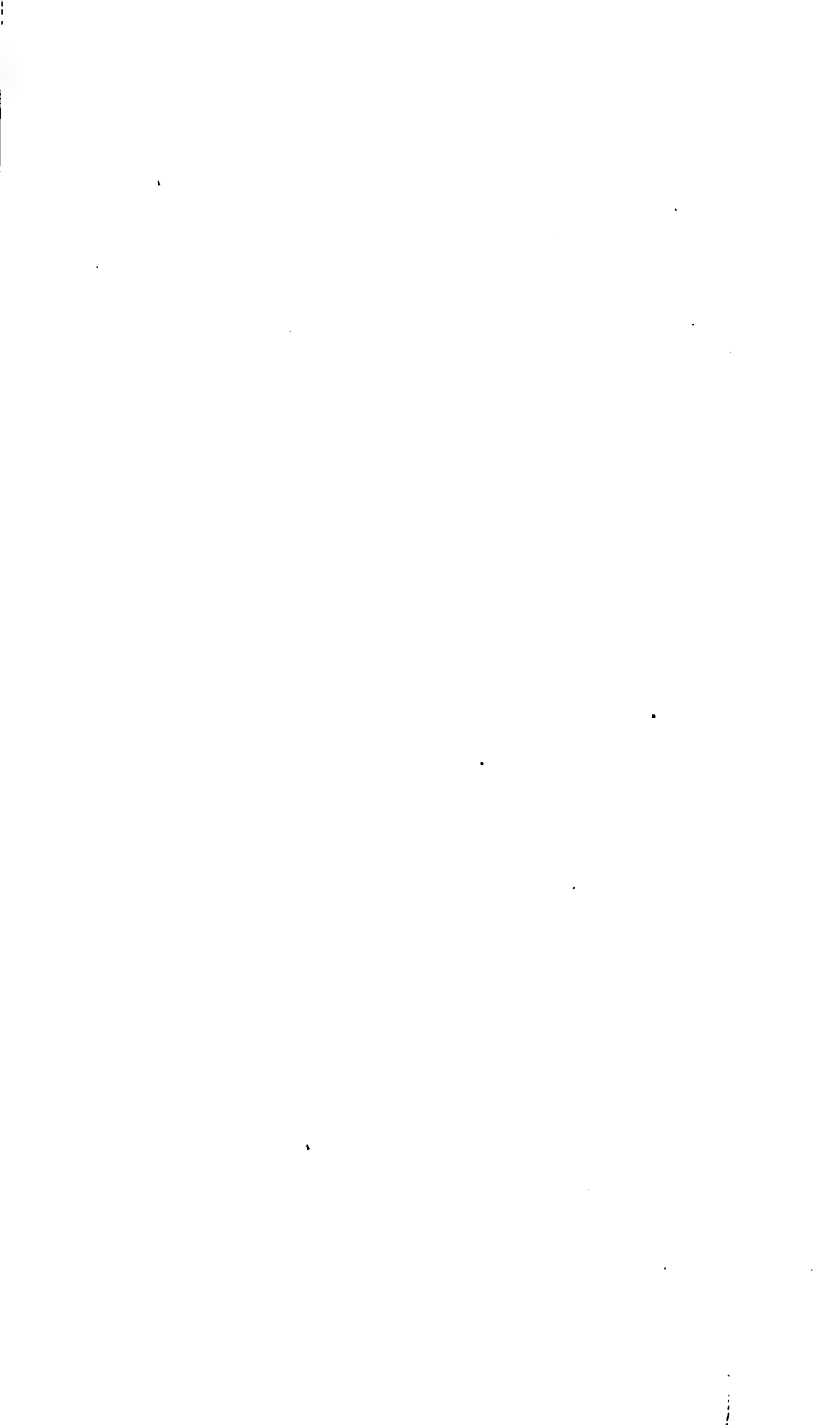
One overseer, \$40; two teamsters, \$22; two wood cutters, \$20.....	82
--	----

One cattle tender, \$8; three fatigue hands and general laborers, \$30..	38
--	----

\$743

Wood cut at fifty cents per cord and found.

D. F. BOYD, *Superintendent.*



Tabular Statement of the Current Expenses of the Louisiana State Seminary of Learning and Military Academy for the year 1868.

	SESSION 1867-'68.					SESSION 1868-'69.				
	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.
	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.	Average No. of Cadets present.
Academic Board.....	130	129	124	124	123	123	104	113	120	118
Surgeon's fee.....	\$1,546 00	\$1,438 00	\$1,401 00	\$1,606 00	\$1,565 00	\$1,505 00	\$1,687 00	\$1,674 07	\$1,877 00	\$1,877 00
Sub-officers.....	139 00	153 00	160 00	159 00	166 00	180 00	113 00	121 00	125 00	125 00
Meas hall attendants.....	150 00	150 00	730 00	133 00	129 89	195 00	138 33	150 00	123 33	150 00
Seminary building.....	301 23	273 21	266 75	250 10	267 60	293 40	245 20	279 33	274 10	272 54
Laundry.....	67 60	74 23	79 33	73 67	60 20	64 70	61 10	63 03	73 89	66 67
Lights.....	139 20	137 00	104 27	133 00	120 10	122 00	104 10	117 52	120 05	123 20
Commissary stores.....	42 60	43 50	44 70	42 00	23 20	25 00	26 30	25 50	37 45	39 50
Text books.....	1,524 40	1,547 90	1,541 65	1,622 13	1,524 40	1,410 75	1,680 10	1,293 15	1,503 60	1,331 23
Incidental.....	175 25	275 15	102 24	811 55	55 30	10 55	831 82	344 35	131 45	28 00
Fuel.....	129 40	30 00	107 67	105 00	108 80	110 80	88 12	77 75	111 66	85 03
Storage, (Pineville).....	75 00	30 00	20 00	10 00	10 00	10 00	30 00	50 00	80 00	123 00
Freight.....	30 10	24 40	18 10	26 25	18 35	19 45	15 15	13 80	18 50	23 05
Forge.....	39 00	47 65	46 25	73 25	35 00	43 75	02 95	31 25	65 00	82 20
Medicine.....	72 00	60 00	82 70	95 51	49 40	37 30	37 00	35 90	67 83	61 55
Expenses per month.....	25 00	35 00	23 00	25 00	25 00	23 00	25 00	25 00	25 00	23 00
Monthly expenses per cadet.....	\$4,424 88	\$4,419 28	\$4,230 50	\$4,331 85	\$4,069 79	\$4,202 20	\$4,545 17	\$4,381 31	\$4,422 78	\$4,370 70
Daily expenses per cadet.....	1 10	1 17	1 10	1 17	1 08	1 14	1 43	1 20	1 22	1 10

D. F. BOYD,
Superintendent and Treasurer.

LOUISIANA STATE SEMINARY, January 1, 1869.

Addendum to Account Current.

1868.	
December 31—To amount due Merchants, Tradesmen, etc.,.....	\$6,836 49
To amount due on the Janeau property.....	300 00
To amount due Citizens' Bank, \$9,000 00 and Insurance from October 2, 1865.....	11,340 00
To amount due Professors and Employes, as per abstract....	11,332 81
	<hr/>
	\$29,809 30
1868.	
December 31—By balance on hand.....	\$1,401 10
By fees due from Cadets Septem- ber, 1865-66.....	\$296 76
By fees due from Cadets Septem- ber, 1866-67.....	1,404 00
By fees due from Cadets Septem- ber, 1867-68.....	1,699 91
By fees due from Cadets Septem- ber, 1868-69.....	1,083 10
	<hr/>
	\$4,483 77
By Beneficiary warrant fourth quarter, 1868.....	9,800 00
By Beneficiary warrant second quarter, 1867.....	
Subject to the order of Citizens' Bank.....	9,800 00
By balance.....	4,324 43
	<hr/>
	\$29,809 30
<i>Value of Provisions, Text Books, Stationery, etc., on hand Jan. 1, 1868.</i>	
Provisions and Forage, as per purchase bills.....	\$1,454 24
Text Books, as per purchase bills.....	3,173 63
Stationery.....	408 33
Building materials and materials for repairs.....	150 00
Two hundred and fifty cords of wood at \$1 25.....	312 50
	<hr/>
	\$5,498 70

D. F. BOYD,
Superintendent and Treasurer,

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ANNUAL REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY,

FOR THE YEAR ENDING DECEMBER 31, 1869.

SESSION OF 1870.

NEW ORLEANS:

A. I. LEE, STATE PRINTER.

1870.

CTC



ANNUAL REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

Louisiana State Seminary of Learning

AND MILITARY ACADEMY,

FOR THE YEAR ENDING DECEMBER 31, 1869,

TO THE GOVERNOR.



NEW ORLEANS:

A. L. LEE, STATE PRINTER.

1870.

BOARD OF SUPERVISORS.

1869-'70.

HIS EXCELLENCY H. C. WARMOTH,		POST OFFICE.
<i>Governor and ex-officio President,</i>		New Orleans.
HON. JOHN T. LUDELING, <i>Chief Justice,</i>	} <i>ex-officio,</i>	
HON. THOMAS W. CONWAY,		
<i>State Superintendent Public Education,</i>		New Orleans.
HON. WM. H. BELL, <i>State Engineer,</i>		
HON. W. L. SANFORD,	} <i>Executive Committee,</i>	
<i>Vice President,</i>		Alexandria.
HON. HARRY LOTT,		
HON. G. MASON GRAHAM,		
HON. BARTHOLOMEW EGAN, M. D., <i>Bienville Parish,</i>		Mount Lebanon.
HON. J. L. LEWIS, <i>Claiborne Parish,</i>		Minden.
HON. S. O. SCRUGGS, M. D., <i>Natchitoches Parish,</i>		Natchitoches.
GEN. ROBERT, J. RARROW, <i>Ascension Parish,</i>		Donaldsonville.
HON. ROBERT RAY, <i>Ouachita Parish,</i>		Monroe.
HON. WM. C. BLACK, <i>Orleans Parish,</i>		New Orleans.
HON. G. W. LEWIS, <i>Orleans Parish,</i>		New Orleans.

All communications to the Board should be addressed to Hon. W. L. SANFORD, Vice President and Chairman of the Executive Committee, Alexandria, La.



NOTE OF TRANSMITTAL.

NEW ORLEANS, LA., January 29, 1870.

To His Excellency H. C. WARMOTH, Governor of Louisiana:

SIR—In behalf of the Board of Supervisors of the Louisiana State Seminary of Learning and Military Academy I have the honor to transmit to you herewith, to be laid before the Legislature, the annual report of Colonel D. F. Boyd, Superintendent, which has been adopted as the report of the Board of Supervisors. This report is very able, and gives full information in regard to all matters pertaining to the Seminary, and the Board of Supervisors would respectfully invoke the favorable consideration by the Legislature of the various suggestions and recommendations contained therein.

Very respectfully,

W. L. SANFORD,
Vice President Board of Supervisors.



REPORT.

LOUISIANA STATE SEMINARY,
January 1, 1870.

To His Excellency, H. C. WARMOTH,

Governor of Louisiana, and ex-officio President Board of Supervisors:

SIR—In obedience to law, I have the honor to transmit to the Board of Supervisors the following returns for the year 1869:

1. Roll of officers and cadets (A).
2. Report of Treasurer (B).
- *3. Return of property (C).
- *4. Return of library (D).
- *5. Return of apparatus, cabinets, etc. (E).
6. Report of topographical and geological survey of Louisiana (F).
7. Report of botany of Louisiana.

Much of what I may think necessary to say in this Annual Report must be a repetition of what has recently been forwarded to your Excellency, in answer to a special call for information.

During the year just closed, the State Seminary experienced both good and bad fortune. It was overcoming its pecuniary difficulties, extending its course of study, enlarging its library, apparatus and cabinets, adding to its buildings and improving its grounds; its first graduates had gone forth from its walls, and the topographical and geological survey of the State was begun. In a word, the institution was doing much good, and for that reason, and the still greater good it bid fair to do, it was attracting the attention and securing the confidence of the public, as shown clearly by the large number of cadets with which it begun its session in September last.

Such was its general condition on the morning of the fifteenth of October, when the main college building was entirely destroyed by

* Documents C, D and E omitted in the publication.

fire. The executive committee of the Board of Supervisors was duly informed of the fact. Now, as then, the *origin* of the fire is unknown. The commissary storeroom was discovered to be in flames about two o'clock in the morning, and the fire had progressed so far that, with our limited means, we could not extinguish it. No proper provision against fire had ever been made. The supply of water was not sufficient, nor was there anything like hose or engine. The danger to the building from fire was always a subject of remark; but as no special provision had been made, the Seminary was not able, from its general fund, to take the proper precautionary measures to put itself on a good *fire* footing, and the building of necessary tanks and the purchase of an engine were deferred till the institution was better in funds, in the hope that meanwhile, as formerly, no serious accident from fire would occur. But that has proved a false delusion, an unpardonable blunder; and I cannot reproach myself too much for not insisting more strongly than I did, in every annual report I have had the honor to make, that the necessary precautionary measures against fire be taken. I cannot but feel that the destruction of the building was, in a great degree, my fault. To me, who had been connected with the institution so long, who was present at its first organization, and have ever since belonged to it; who had there taught hundreds of Louisiana's youths, and had been associated in its academic board with some of the ablest and most distinguished men of the age, the burning of the dear old building was a heart-rending spectacle. The labor of years seemed destroyed in a few hours. But that was no time for tears or despondency. The Seminary had to be saved, and one hundred and forty-three young men had to be fed and sheltered. The kindness of the professors and the citizens of Alexandria soon relieved the pressing wants of the cadets. The executive committee of the Board of Supervisors acted promptly, and upon the recommendation of your Excellency, the Board of Administrators of the Deaf, Dumb and Blind Asylum have, at Baton Rouge, tendered the use of a portion of their building as a temporary home for the Seminary until the meeting of the Legislature; and, on the first day of November, just two weeks after the destruction of the Seminary building, the school was re-opened, with a large number of cadets present, and accessions coming in almost daily. The close of the year (1869) has found us with one hundred and thirty-eight cadets present and

twelve absent; total, one hundred and fifty. On the morning of the fire we had one hundred and thirty-three present and ten absent; total, one hundred and forty-three. Only two cadets of that number failed to follow our fortunes to Baton Rouge, while nine others have since been added to the roll.

It has been duly reported to your Excellency that the apparatus, cabinets and library of the Seminary were saved, and also most of the school furniture; but the kitchen and dining room furniture was almost entirely destroyed. Only about one-fourth of the room furniture, bedding, etc., was saved, and nearly all the text books in the hands of the cadets were lost. Then, besides our building, the losses otherwise were very great. Exactly what they were, we have not, on account of the heavy tax on our time to start the school anew here, been able, as yet, to make a full estimate; but it cannot fall short of (\$20,000) twenty thousand dollars' worth of furniture and stores of all kinds. And to refit here has required a heavy outlay, amounting thus far to nine thousand nine hundred and fifty-seven dollars and twelve cents, with much necessary furniture still to be provided. To meet this expense, together with that of removal to Baton Rouge, we have had no special fund, and have been compelled to draw on the general funds of the school, which, consisting chiefly of State warrants, subject to heavy discount, were not sufficient for even our *ordinary* purposes. The close of the year has, therefore, found the Seminary, over and above all its assets, seventeen thousand five hundred and ninety-nine dollars and seventy-three cents in debt. But of the fifteen thousand dollars voted at the last session of the Legislature for building three professors' houses, there is an unexpended balance of nine thousand one hundred and sixty-five dollars and twenty cents; also, a balance of seven hundred and eighty-six dollars and thirty-two cents due the appropriation of five thousand dollars for out-houses, improvement of grounds, etc. Could these balances, total nine thousand nine hundred and fifty-one dollars and fifty-two cents, be used for the general purposes of the school, the indebtedness would be reduced to seven thousand six hundred and forty-eight dollars and twenty-one cents, and it would not be necessary to ask the Legisla-

ture for relief to the extent of more than twenty thousand dollars to pay its present debt, and to refit whatever stores may yet be necessary.

There still remain, in good condition, four large professors' houses of six rooms each, and all the out-houses of the college building ; and the amount of land belonging to the institution is seven hundred and sixty acres, about one-half of which is well timbered ; but the soil is very poor and of little value, except for its timber and the extensive grounds it gives the school. I would estimate the value of the land and improvements at not less than thirty-five thousand dollars, and the foundation of the college building and the debris of the walls (old brick, iron, copper, etc.), should it be rebuilt, at about ten thousand dollars ; to which adding the money value of the apparatus, cabinets and library of over six thousand volumes, estimated at forty thousand dollars, and that of the room and school furniture, text-books, other movable property and live stock saved, valued *all* at not less than ten thousand dollars, you will have for the total amount of Seminary property on hand, after the destruction of the main building, about ninety-five thousand dollars.

Now, shall an institution of so much material and wealth (not losing sight of its annuity of \$8,220,) and with an organization of so much vigor and vitality, be allowed to go down ? I cannot believe it. The Seminary has merely lost its college building ; it has left all else necessary to its usefulness and greatness, and this day its classes are moving as though no such *small matter as being burnt out* had happened ! The individual who would fold his arms and pine and *die*, because he had lost his dwelling house, would be a pitiful object, indeed ; and the public institution that, for a like reason, would die, too, should be none the less deserving contempt. But the State Seminary, with the aid of your Excellency and the Honorable Board of Supervisors, and by the grace of the Legislature, will not fold its arms, or pine, or *die* ! I am sure the college building will be rebuilt, and the institution re-established *somewhere* ! *Where*, is a question

for others to decide. I have merely my own opinion, as any citizen of Louisiana may have. I believe it would be best to rebuild at the old site, near Alexandria. There is but one serious obstacle to rebuilding there—its *inaccessibility*; but the railways from Baton Rouge to Alexandria, and beyond to Shreveport, and from Alexandria to Arkansas, in the direction of Little Rock, must be finished, as soon as the college building can be restored; and then no point in Louisiana would be more suitable as regards either health, quiet, freedom from dissipation, or even *accessibility*. And the associations of the old spot should have much weight. *There* were the early struggles of the school for its existence; *there* some of the most eminent men of our country were among its officers, and *there* so many of the youth of our State have received instruction. Change the location, and the Seminary would have no *past*, but its ashes in the pine woods of Rapides. It would begin life anew, with a doubtful future. Great as are the practical educational advantages of the old site, its *morale* would have even a greater influence on the success of the school. See, for instance, in accompanying letter (A), how deeply grieved at the loss of the building was that great soldier who *now* commands the armies of the Union, but who was our first Superintendent. And see, too, (A), with what feelings of sorrow Hon. Mr. Conway, our State Superintendent of Public Education, heard of its destruction, and how promptly and energetically he determines that it must be rebuilt. But to the better judgment and superior wisdom of the Legislature must be left the selection of the future home of the Seminary. I cannot believe that honorable body will refuse to come to its relief; but should it not order the building to be restored, why, the *Seminary must simply rebuild itself*! It has an annuity of \$8,220, upon which bonds to a sufficient amount to enable it to restore the college building can be issued. It is true, such an arrangement would greatly cripple and impede the academic exercises, for it is to the annuity that we mainly look for the payment of the professors; but if compelled to do without the annuity for that purpose, it would simply *have to be done*; and the salaries of the professors, somewhat reduced, could be paid, we would hope, by the tuition fees alone. It is plain, I think, that the Seminary can be fully re-established, and the educational interests of Louisiana require an earnest effort to that effect to be made.

Upon the recommendation of your Excellency, the Board of Administrators of the Asylum for the Deaf and Dumb and the Blind tendered this Institution the use of the north half of their building, until the meeting of the Legislature. We find on trial that we have not sufficient quarters for all our purposes. The young men are crowded eight and ten in a dormitory, which due considerations for their health should forbid. Nor have we rooms in which to place our *Library* and *Apparatus, etc.*, which are consequently still (in store) in Rapides; and I should also say that we have not enough rooms for our class purposes. You will see, therefore, that the Institution, at present, is not in good condition. To be without the use of our library and apparatus, is a great misfortune, and really for the time practically degrades the Seminary from a College to a common school. What then is to be done for its immediate relief? The officers of the Asylum think that no more room can be spared us, * and as they are supposed to know best what they need, and certainly have been very kind and obliging to us, we acquiesce most cheerfully in their decision, whatever may be our opinion. Failing to get more room, I thought it well to propose to board the inmates of the Asylum at the same rates, as charged the cadets, fifteen (\$15) dollars each per month, provided the Asylum would give up to the Seminary the use of the south wing of the building, containing the mess hall, kitchen, store rooms, etc. But that proposition, too, failed. I regretted it very much, believing it would have been highly beneficial to both parties, as it did not infringe at all upon the portion of the building now used by the Asylum for dormitories and study rooms, and would have saved that institution considerable expense (for it cannot board its inmates, so few in number, at fifteen dollars each per month), while the Seminary in giving up its improvised dining room, kitchen, store rooms, etc., would have ample room for its library, apparatus and classes. But even that arrangement could have given us no more dormitories for the cadets. It is clear, therefore, if the Board of Administrators can give us no more room, that the Seminary must look for quarters elsewhere, or the inmates of the Asylum must be removed, accordingly as the Legislature may

* NOTE—The Board of Administrators have since (January 27) decided that more room can be given to the Seminary; and we hope the Superintendent of that institution will be able very soon to carry out practically the unanimous opinion and wish of the members of the board.

decide best for the public good ; and while we believe it more practicable to remove the comparatively few inmates of the Asylum, yet that should not be done until the Legislature is positively assured that suitable quarters can be provided for them elsewhere. But I am firmly of the opinion that with proper economy of space there is ample room for the necessary purposes of both institutions, and I have hope that the Board of Administrators will see it in that light. It is true, there would be more or less inconvenience to both parties; neither would have quite the elbow-room it would wish ; but at a time like this, when the life of a great State school is at stake, surely another public institution of the same State should give up some of its comforts and luxuries for the public good. This the Asylum has already done to a considerable extent, and that its officers will soon see that it can further oblige us, and will cheerfully give us more room, I have no doubt. But should I be mistaken, and it be decided by those in authority that this building cannot accommodate both institutions, I would beg leave to suggest the propriety of providing other quarters for the blind only. The two classes here in this Asylum have but the one point in common, the one quality in harmony—they are both unfortunate. The experience of other States and countries has been generally, I believe, to separate them, and common sense says the last two persons in the world to be selected to live together under the same roof is one that cannot *see* and another that can neither *speak* nor *hear*.

To separate those two classes, and remove one of them, would, I think, be to their advantage, and it would enable this institution to have plenty of room for every purpose, except that the grounds are not sufficiently extensive to enable the cadets to take proper recreation. But for a *temporary* home, the Seminary could not wish for a more useful and comfortable place than this asylum.

To the administrators and officers generally, of that institution for many acts of kindness and assistance, and a general disposition to relieve our wants, the thanks of the Board of Supervisors are eminently due. And I must speak of the town of Baton Rouge, whose council and citizens have shown us so much sympathy and extended us all the help in their power. To cadet A. B. Waddill and Captain Q. S. Chapman we are particularly indebted for their great efforts to relieve our necessities on our arrival. We find the little city very quiet and moral, and blessed with religious influences.

I beg leave to call close attention to the treasurer's report (B). Our liabilities, over and above all assets, are, as before stated, the frightful figures \$17,599 73, and the cause of our financial grief is the fire, and that worse than a fire, the deplorable condition of the State finances. The Auditor's warrants having realized us (average on the appropriations), but seventy-six cents on the dollar. We began the year \$4,483 77 in arrears, and the double cause of depreciation of funds and the necessity to refit some of the furniture, stores, etc., lost by fire, now leaves us so badly in debt. I hope the Board of Supervisors will earnestly appeal to the Legislature for relief. Besides the amount in arrears, a sufficient sum, say \$10,000, should be appropriated to enable the school to renew whatever else may be necessary to put its dormitories and school rooms in good condition, so that the total amount of appropriation to be asked of the Legislature for the relief of the Seminary, should be, considering the depreciation of State funds, not less than \$20,000. I have before said that there was an unexpended balance of \$9,951 52 due the building and improvement fund. I cannot think there will be any objection, under the circumstances, to using this balance in paying the general indebtedness of the school. If so, then the appropriation asked for must be increased by that amount. You will please observe that the appropriations for repairs of buildings and for library and apparatus, each \$5000, have been fully expended.

In the light of our sad financial condition and the necessity to fill the vacant professorship of Natural Philosophy, I hope the action of the Executive Committee in raising the salaries of some of the professors, at their meeting in June last, will not be approved. Dr. Hopkins should receive five hundred dollars additional for his medical services; but nothing more should, I think, be done. The professors themselves do not wish it.

I have frequently asked to be relieved of the duties of treasurer. Besides the impropriety of the superintendent holding that office, moneyed responsibility is distasteful to me; and, the Board will please remember that I assumed the duties temporarily, until the institution was able to command the services of some good, responsible man. I do, therefore, most earnestly request to be relieved as treasurer, as early as may be practicable.

The main building had been put in good repair and much work done towards beautifying the grounds, and some necessary out-houses were erected.

The Irving house, with one hundred and twenty acres of land attached, was purchased for two thousand dollars, and repairs to the amount of four hundred and fifty dollars and eighty cents were done to it. Mr. Seay continues to occupy it, and the other professors' houses are also in possession of good families, with Captain O. K. Hawley, of Alexandria, in general charge of the whole property. For the faithful attention which that gentleman has bestowed, without any money consideration, upon the interests of the Seminary in Rapides, I ask for him the only reward which our poor institution can give him, a vote of thanks by its Board of Supervisors.

The library, apparatus, etc., were saved with but little loss or damage. During the year many books were purchased; also, valuable donations were made. The additions were chiefly of a scientific character; but other branches were not neglected, particularly the Latin classics, a full set of which, Lemarie's edition of one hundred and forty-three volumes, was obtained as "duplicates" from the State Library. The principal donor was General W. T. Sherman, who presented the library with sixty-three volumes, mostly scientific works, together with several interesting military maps; and, at his instance, the Smithsonian Institute gave a complete set of all its publications. The General is much devoted to the Seminary, and never lets an opportunity pass to advance its interests. He honored us with a special visit in February last, and seemed much pleased with his reception and the condition of the institution. To Hon. W. Jasper Blackburn and Senator Kellogg we are indebted for Congressional and other public documents.

The collection, now over six thousand volumes, besides a large number of unbound pamphlets, is beginning to embrace all subjects of ancient and modern thought. It is mainly deficient in metaphysics, theology and the Greek classics. The scientific works are very superior.

A large number of pictures, engravings and chromo-lithographs was purchased, but I regret to say that about one-half of them were destroyed; also, several valuable maps were burnt.

he topographical and geological survey added much to the collection of geological specimens; it also gave us a few minerals, and to cadets and private individuals, we are, as heretofore, much indebted for donations, particularly to Mrs. R. L. Chilton, Mrs. M. L. Hollsberry, Mrs. J. D. Kenton, Captain W. C. Black and Albert Baillis of New Orleans; Captain Jack Willett, of Catahoula, John Ewell, and Judge Carrigan, Avoyelles, Messrs. Price and Choteau of Iberia, and to the Virginia Military Institute; and to cadets Grimes, Fulford, Evans, Ker, Smith of West Feliciana, Thompson of St. Landry, Gaiennie and Waddill.

But more than ordinary attention should be drawn to an admirable collection of more than two hundred specimens of minerals and fossils, donated by Professor Featherman, and a large collection of several hundred specimens of building and ornamental stones, fossils, etc., now being prepared, as a donation to the Seminary, by the Hon. Newton Richards, of New Orleans. Professor Featherman is now preparing an herbarium of Louisiana. He had secured some eight hundred specimens, all of which were lost at the fire; but he has since collected and prepared a large number.

To Mr. S. B. Robinson, who had occasion to visit the North, the Seminary is indebted for the selection of a superb set of mathematical models, in plaster, by Engel; also for architectural drawings. The mathematical models were somewhat injured by rough handling at the fire. Mr. Robinson has also prepared, himself, a number of models in thread, illustrative of the conic sections and the descriptive geometry.

Previous to the fire, I was in communication with Dr. L. A. Wails, of Mississippi, relative to the purchase of the very large and valuable geological and mineralogical cabinets of his father, late geologist of that State; but it is probable that they cannot now be secured. The collection, perhaps the best in the Southern States, the work of time, intelligence and a rare zeal, that stopped at no expense, was gotten up very greatly from Louisiana, and illustrates its geology, etc., nearly as well as that of Mississippi. Colonel Lockett, has examined it, and pronounces it invaluable to our school.

The topographical and geological survey of the State has progressed as much as possible, under the disadvantageous circumstances attending the Seminary during the latter part of the year. Accompanying, please find the report (F) of the professors in charge.

The fire and removal to Baton Rouge rendered it impossible for them, as was their intention, to be absent in October and November, yet they have done enough to show that in a few years the physical history of Louisiana can be written. Without the services of Colonel Lockett, the reorganization of the school at Baton Rouge could not have been effected; and Dr. Hopkins had necessarily to remain for some time near Alexandria, to rearrange his cabinets, etc., which had been put in great confusion; and even yet he is completely cut off from his laboratory, and cannot make the necessary analyses. He is now in Northwest Louisiana, where he will remain during the month of January. At this time it is impossible to spare Colonel Lockett from his duties as commandant, and with the necessity for stricter discipline at Baton Rouge than we have heretofore had, I do not see how he can devote any portion of his time during the session to the topographical survey, and when Dr. Hopkins is absent another physician must be called in to attend to his surgeon's duties. I think, therefore, that it would be well to relieve both of these professors from their extra duties—the one from the surgery, and the other from the position of commandant of cadets.

To which neither, I am sure, would object in the least; for it is well known to the board how distasteful to Colonel Lockett are *his* extra duties, and that Dr. Hopkins has never been paid a dollar for his medical services. Besides their salaries as professors, the State should pay them *each* one thousand dollars per annum for conducting the survey. That was asked for last year, but the Legislature saw fit to reject it; so that Colonel Lockett and Dr. Hopkins actually did hard service for the great State of Louisiana, during the months of July and August last, without a cent of compensation. The Seminary, is ashamed of the injustice done those gentlemen, and so we trust, upon a little reflection, will be the Legislature and the State. Nor is the five hundred dollars, each, for traveling and contingent expenses, sufficient. It should be raised to one thousand dollars, each.

With the exception of one miserable creature in Harrisonburg, who took advantage of their necessities to extort from them excessive charges, both gentlemen speak in high terms of the uniform courtesy, kindness and assistance extended to them by the people wherever they passed; and to the Hon. John Ray, for giving them material aid, when in needy circumstances, in Monroe, the institution is much indebted.

Experience having shown that, instead of a *joint* survey, it would be better—more expeditious and otherwise more practicable—to have *separate* surveys of the topography and geology of the State, I would recommend that the law be so amended, and that provision also be made for an agricultural and botanical survey. Happily we have a professor at hand skilled in botany and agricultural chemistry. Mr. Featherman has already done much towards giving the seminary a correct botany of Louisiana, and I cannot believe the board will examine otherwise than with pleasure his accompanying report (G).

The length of the roll of cadets is gratifying—196 having been in attendance during the year, 113 beneficiary and 83 private cadets. But for the destruction of the building there can be no doubt that the number now present would be not less than 175; and I believe the close of this session, in June, will find us with those figures. The conduct of the young men has, in the main, been very satisfactory; still in a few cases severe measures had to be taken to preserve order and discipline. One unfortunate youth got into an affray in the town of Alexandria, and I regret to say, took the life of a citizen. Without intending to pass opinion, in the least, of his guilt or innocence in the eyes of the law, the regulations of the Seminary demanded his dismissal. For both parties to this sad affair, the living and the dead, the Seminary felt the profoundest sympathy. To the poor boy, whose guardian we were, every consolation and assistance compatible with law, were extended; while to the family of the deceased our heartfelt condolence was freely given.

I have spoken so frequently of the good conduct of the beneficiary class of students that I now need only say that at no time heretofore have they better deserved to be highly commended to the Board of Supervisors, for the highest qualities that should adorn the cadet and young gentleman. They are, indeed, the pride and the hope of the Seminary. Of them were four of the graduates of June last: Cadets J. H. Eady, of St. Helena; T. B. Edwards, of Iberville; H. P. Packard, of New Orleans, and Joseph Pierson, of Bienville. All of whom are now teaching school, as the law directs, in Louisiana. But, to be just, we cannot always praise; and of the conduct of a few beneficiaries we must speak as it deserves. Cadets C. H. Bar-

row, of Pointe Coupée; J. H. Maltby, of New Orleans; T. A. Moss, of Caldwell, and A. F. Ogilvie, of Caddo, left the Seminary of their own accord, and without sufficient cause. Beyond the violation of the rules of the school, they, and those similarly reported last year, no doubt designed no wrong; but justice to the State, which was educating and maintaining them on certain conditions, requires that some legal proceedings should be had against them for the violation of the sacred obligations of the law of their appointment.

I would respectfully suggest that the beneficiary law be amended so that every parish in the State, now or hereafter formed, be entitled to two (2) cadets and the city of New Orleans to twenty-four (24).

It is my painful duty to announce the death of Cadet Pierre Gas-sie, of West Baton Rouge. He died at his home, on the fourteenth of August last. One of the brightest and best of our beneficiaries, his pleasing face and manly deportment were sadly missed from among us. The officers and cadets all bear testimony to his great worth, and to his family and friends extend expressions of their deep grief and sympathy in their great affliction.

Death also laid its ruthless hand on two of our professors. Professor James M. Boyd died on the fifteenth of February last. His declining health had prepared us for the sad event; but his clear intellect and scholarly attainments for one so young; his great devotion to his profession and signal ability as an instructor, and his fine character as a Christian gentleman, we have not replaced, and may never do.

Rev. Father Billin had resigned March 1, last, and while making his arrangements to return to his native France, died at the Seminary on the eighth of April. He had lived in Louisiana so long, and was endeared to so many of her people, that the death of few persons in the State was ever more universally regretted and deeply mourned.

Professor Featherman, the newly elected Professor of Modern Languages, assumed the duties of that chair first September last. The high estimation in which the Board of Supervisors were induced to hold his services at the time of his appointment, proves, on trial, not to have been erroneous. He is an able scholar, and thoroughly

devoted to his duties as a teacher. I believe, however, that fine linguist as he is, it would be better for the interests of the Seminary that he be made, as early as practicable, Professor of Agricultural Chemistry and Botany. He would greatly prefer being in the scientific line of study, and is now, as before stated, devoting much time to botany and the preparation of an herbarium of Louisiana.

I regret to report that Mr. William A. Seay, Acting Professor of Greek, could not accompany us from Alexandria. He will probably never serve the institution again as a professor, and it is almost equally sure that the school will never have a better officer, or a warmer friend.

Feeling it to be my duty to make some temporary provision for instruction in the Greek classes, I have taken the responsibility of assigning Mr. Charles W. Hutson as Acting Professor of Greek until the meeting of the Board of Supervisors. I was the more induced to select Mr. Hutson, because I was aware of the very favorable impression which his testimonials had already made on the board.

The vacant chair of Natural Philosophy should, I think, be filled without further delay, and with a man of military education. Our school being military in its law and spirit, all its professors, should, if possible, have had a military training; and experience tells how hard it is to break into military ideas, or rather to correct notions of discipline and order, a teacher reared under the old civil regime. He is almost sure, at first, to take personal offense at some of the restraints so necessary to be thrown around him as well as the cadet he teaches.

Whoever is appointed Professor of Natural Philosophy should also, I think, be made commandant of cadets. Colonel Lockett's resignation of that office being now before the board.

While no material change has been made in the course of study, instruction in the branches of chemistry, natural philosophy, and modern languages has been more extended; and provision has also been made for a class in botany. The extensive herbarium which Mr. Featherman is now preparing, will greatly facilitate instruction in this interesting and important study.

During the coming year, Mr. Palmer will, if it be desired, teach a class in Hebrew. I regret that no provision has yet been made for teaching the Sanscrit.

It will be a sad day for American literature, when this practical age drives out from our colleges the ancient and oriental classics, to give place chiefly to the mathematics and physical sciences, and their practical application. If education is to consist in the so-called practical, if that knowledge alone is desirable, which enables one to make a dollar, then away with all colleges. Let there be only elementary schools, to teach the boy to read and write and cypher; the rest that is *useful* can best be learned in the actual business of life. No commercial school is equal to the counting-house; no agricultural college like the plow, and no mechanical institute so good as the factory and the work shop. But if it be the great object of life to learn to be a wise and good man, as well as capable of acquiring wealth; if the civilization of this age aims to make us think deeply and reason accurately; to know universally and speak eloquently; to act honestly and behave courteously; to feel religiously and live virtuously, it would seem unsafe not to listen to the experience of past ages, as to the best means of developing man's mental and moral nature.

Both schools of educators, the purely theoretical and the purely practical, are wrong; and between those two extremes should lie the golden mean of modern education. The head, the heart, and the hand should all be educated; each has its duty to perform. Much as our century deserves credit for its *go-ahead-iveness*—its development of material resources—it must be admitted that the moral, and religious, and social man is on the decline. This should not be, nor can it continue long. Let us not curb, as we can do, by a proper system of education, the rough, fiery spirit of the material progress of this day with the amenities and refinements of the olden time; and ages to come will be proud of us. In our system of education, let no human faculty, mental, moral or physical, be neglected. In the words of the noble Cornell, the illustrious founder of the great University which bears his name, let us “found an institution where any person can find instruction in any study.” But there is an objection to the study of the ancient classics in our schools, which I believe is well founded—the *great amount of time devoted to those studies*. Of course, the enormous loss of time in

fumbling the leaves of a dictionary, hunting the meaning of words, is unnecessary. There is no reason why improved methods should not be applied to the teaching of youth, as well as to other pursuits of life; and such, happily, is the case. A skillful teacher now will enable a boy to learn as much Latin or Greek in one year, as fifty years ago he could be taught in twice that time; so that not the *old classics* should be thrown aside, but the *old class of teachers*!

Again, I would beg leave to call attention to the grant of land by the General Government for establishing schools for the promotion of agriculture and the mechanic arts. I am informed by the Hon. John Lynch, Surveyer General of Louisiana, that the scrip for this State is now being made out in Washington, and the question must soon arise, what ought to be done with it, so as to be of most service to Louisiana. I can add nothing, in this regard, to what is contained in the annual report of 1867, which I will here repeat:

"I trust so important a matter will be kept constantly in view, and that the Legislature, at its next session, will be again asked to confer all the benefits of the donation upon the Seminary. By the conditions of the grant, no part of the fund accruing from the lands can be used in the erection of buildings, so that the Legislature must either incur additional expense in the erection or purchase of suitable buildings, or make use of the buildings of one or more of her colleges already established. The latter policy has been adopted, with but few exceptions, by all the Northern and Western States, which have accepted the donation and established such schools.

When we consider how poor Louisiana is, and must be for years to come, and that thirty thousand acres of land for each of her Representatives and Senators in Congress, make the donation only two hundred and ten thousand acres, I think it would be unwise to divide the fund, as some suggest, between two or more of the State institutions. By giving it all to one institution, scientific knowledge would be advanced and finally more generally diffused throughout the State; and if this view is correct, where could the fund be placed with as much hope of a sure and speedy benefit to the rising generation of Louisiana, as at the Seminary—its scientific chairs already established, its laboratory, apparatus, cabinets and library already provided, and a large number of her cadets educated for the express

purpose of becoming teachers in the State? There is no doubt but this Seminary is peculiarly fitted to receive the donation and to use it to much advantage. The whole fund would be a magnificent endowment, and would the sooner make the Seminary, what finally she must be, the great school of the Southwest.

Accompanying please find (C) programme of professorships, etc., of Agricultural and Mechanical College, as proposed to be connected with the Seminary.

Should this Agricultural and Mechanical school be connected with the Seminary, will not the Legislature change its name? There is much in a name. This institution would have attained much more success and a higher degree of respectability, but for the silly, not to say ridiculous title with which it has been cursed. Strangers mostly consider it a *female* school of ordinary grade. Surely it has carried the dead weight, "*Seminary*," long enough, and I trust the Board of Supervisors will petition the Legislature for relief. I would suggest as an appropriate name "the Louisiana Military Academy," or "the Louisiana State University."

As to the special discipline of the school I wish to say a few words: The system is, as it has been since 1865, very bad and unsatisfactory to both officers and cadets, and it must be so, as long as the uniform, the musket and the drill are suppressed. Lately, we have begun to uniform the cadets, and, next session, unless forbidden to do so, I shall uniform the whole corps. We have also begun some elementary drilling, but having no arms, very little progress can be made. May we not hope that the full military character of the Seminary will soon be restored? It would not only be conducive to good order and better discipline than can possibly be attained under any other system of school government, but the number of cadets would soon be greatly increased. Military schools have always been popular in this country, and you may rest assured that the present anomalous system of discipline, neither *civil* nor *military*, deters many young men from entering the institution. I trust, therefore, that the board will at once give this important subject the attention it deserves, with the view of attempting to have returned to us our full military privileges, in accordance with our charter.

The religious exercises of the Institution have been somewhat inter-

ferred with since the removal to Baton Rouge. The Protestant exercises go on, as usual; but we have not yet been able to have Catholic service, because we could not possibly spare a room to be devoted exclusively to that purpose, as is almost a necessity with that church. But the Catholic boys are enabled readily to attend church in Baton Rouge, which privilege is also accorded to the cadets generally.

Should the Seminary remain at Baton Rouge for any length of time, I think it would be well to dispense altogether with the Sunday service in the Seminary building, having merely prayers daily from the two chaplains.

The health of the cadets has generally been very good at Baton Rouge, only a few cases of serious illness occurring. But I fear the effects of the crowded rooms on their health in the spring. We should have if possible, a special apartment for a hospital.

The superior markets at Baton Rouge have enabled our table to be better supplied than formerly, and at a little less rate; but we cannot now have that order and neatness in our mess hall and kitchen that characterized our establishment in the pine woods of Rapides, for which the Seminary was mainly indebted to Mr. Robinson, the business agent; nor can too much credit be given him for the efficient manner in which he has attended to his duties at Baton Rouge, although laboring most of the time under severe illness.

In conclusion, I beg leave to say that I think it absolutely necessary that good temporary quarters be provided for the school, as early as possible; and I think it best to stay right where we are—in the Asylum at Baton Rouge. Meanwhile, I would recommend the rebuilding of the former establishment, near Alexandria. It is also absolutely necessary that an appropriation of twenty thousand dollars should be made without delay, to pay the debt (\$9,957 12) already incurred in refitting a portion of the furniture stored, etc., lost by fire, and in the removal to Baton Rouge, and to refit whatever furniture, etc., may still be needed. This appropriation is at present the greatest want of the Seminary; and justice to its creditors, without whose favor and confidence it could never have been revived, requires the speedy action of the board and the Legislature.

The payment of the annuity (\$8,220) for 1870, the expense of maintaining and educating the beneficiary cadets during the coming year (\$39,200), the traveling expenses of the board of supervisors

(\$1000), and like expenses of the professors engaged in the topographical and geological survey must, of course, be provided for by this Legislature; and I trust that all the regular expenses of the Seminary will be put on the same footing as the general school fund of the State, and paid in United States treasury notes. Otherwise no reliable estimate of expenses can possibly be made. A liberal appropriation, paid in Auditor's warrants, may really amount to very little.

I beg a moment's further indulgence to thank the following gentlemen particularly for valuable assistance rendered me in the interests of the seminary: His Excellency the Governor, and Hon. Thos. W. Conway, Superintendent of Public Education, Hon. W. L. Sanford, Vice President, and Hon. J. L. Lewis, Doctor S. O. Scruggs and Captain N. C. Black, members of the Board of Supervisors; Hons. Harry Lott, C. B. Pratt, and General McMillen of the House of Representatives; Hon. Messrs. Egan, Lynch, Blackman and Futch of the Senate; and to Swarbrick & Co., grocers, and James A. Gresham, bookseller, New Orleans, for the heavy credit extended by them to the institution in its most trying hour.

Now, thanking the members of the Board of Supervisors for their continued confidence, and commending our cherished institution to the fostering care of Divine Providence, this report is

Respectfully submitted,

D. F. BOYD, Superintendent.

A.

LETTER FROM GENERAL W. T. SHERMAN.

HEADQUARTERS ARMY OF THE UNITED STATES,
Washington, D. C., October 25, 1869.

DEAR BOYD—I was shocked, beyond expression, to read, some days ago, the short statement that our Seminary had burned down, supposed to be the work of an incendiary. I have seen a fuller account since, but nothing that is satisfactory, and would like to have a full account—of the origin of the fire—what was saved—the library and apparatus. Where are you now? Have the students gone home?—and the professors? * * * * *

Mr. Conway telegraphed me from New York to know if General Howard could contribute any thing towards rebuilding. I doubt if he can. His funds are for a different purpose. * * * *

It is barely possible some part of the Peabody fund might go to that object, but my opinion is that it would be wisest for you to erect two cheaper buildings, even of wood, right and left of the site of the old building, and keep them the nucleus, and when two or three years are passed, the State will be able to rebuild and re-endow the old building. But, in fact, that building was too costly. I advise two side buildings as barracks, with a central one, containing only the recitation rooms, library, etc., and kitchen, dining room, etc., back, out of view.

You are young enough to live through war and fire, and yet reach an honorable conclusion. If I remember aright, General Frank Smith's school at Lexington was destroyed in mid-winter, and yet he rebuilt on a better scale.

I have my hands full here, but still feel a curiosity to know how you are, and will be disappointed, if you do not let me know.

* * * * *

Truly your friend,

W. T. SHERMAN.

To Professor D. F. BOYD, Superintendent Louisiana State Seminary, Alexandria, La.

B.

LETTER OF HON. THOS. W. CONWAY.

SUPERINTENDENT PUBLIC EDUCATION,
New York, October 20, 1869.

DEAR MR. BOYD—You do not know how I was shocked by the sad news of the burning of the Seminary. In a moment, I rushed to the Seminary and sent dispatches to generals Sherman and Howard, asking them to secure us Government aid in its reconstruction. Their answers I have sent to the Republican ; you will see them. I will also write to Dr. Sears on the matter.

I am nearly as well as ever, and will soon be back, when I hope to see you.

Yours, etc.,

THOS. W. CONWAY.

To Professor D. F. BOYD, Superintendent Louisiana State Seminary, Alexandria, La.

PROGRAMME OF PROFESSORSHIPS, ETC.,

OF AGRICULTURAL AND MECHANICAL COLLEGE, AS PROPOSED TO BE CONNECTED WITH THE LOUISIANA STATE SEMINARY.

- *1. Mathematics.
- *2. Natural philosophy, and practical photography and telegraphy
- *3. Chemistry, mineralogy and geology.
- *4. Engineering (civil, mining and military) and theoretical mechanics.
- 5. Agricultural and industrial chemistry.
- 6. Agriculture and horticulture (theoretical and practical.) A farm of not less than fifty acres needed, if practicable, which I doubt.
- 7. Practical mechanics. A workshop, with engine and machinery, needed, unless the school is near a large town.
- †8. Natural history (including botany and zoology).
- †9. Astronomy, physical geography, meteorology and navigation. A good astronomical observatory needed.
- †10. Architecture and drawing.
- 11. Physiology, anatomy and veterinary practice.
- *12. English language, belles lettres and history.
- *13. Modern languages (French, German and Spanish).
- 14. Constitutional, international and commercial law, and political economy.
- *15. Book keeping and penmanship.
- *16. Military tactics and strategy.

Besides the above professorships, etc., the present library, apparatus, cabinets, etc., of the Seminary should be greatly enlarged, so that each professor may have whatever special books, apparatus, instruments, models, etc., etc., he may need.

I think the 210,000 acres of land accruing to Louisiana under the bill for establishing agricultural and mechanical colleges, will, together with the present annuity of the State Seminary (\$8,220), enable the above programme to be carried out.

D. F. BOYD, Superintendent.

*These professorships are *already* supplied by the Seminary.

†These professorships are *partially* supplied by the Seminary, botany, astronomy and drawing being taught.

A.**ROLL OF THE OFFICERS AND CADETS**

OF THE LOUISIANA STATE SEMINARY OF LEARNING AND MILITARY
ACADEMY, DURING THE YEAR 1869.

SESSIONS OF 1868-'69 AND 1869-'70.

OFFICERS.

DAVID F. BOYD, Superintendent and Treasurer.

SAMUEL H. LOCKETT, Commandant of Cadets.

F. V. HOPKINS, M. D., Surgeon.

REV. J. P. BELLIER, Roman Catholic Chaplain. Resigned March 1, 1869.

REV. J. B. AVENARD, Roman Catholic Chaplain, from April 1 to October 15, 1869.

REV. J. B. DELACROIX, Roman Catholic Chaplain, since November 1, 1869.

REV. E. P. PALMER, Protestant Chaplain.

S. B. ROBINSON, Business Agent.

ACADEMIC BOARD.

DAVID F. BOYD, Professor of Mathematics.

SAMUEL H. LOCKETT, Professor of Engineering.

JAMES M. BOYD, Professor of Natural Philosophy. Died February 15, 1869.

JOHN P. MCAULEY, Professor of Latin.

WILLIAM A. SEAY, Acting Professor of Greek, and Lecturer on International Law. Resigned October 15, 1869.

REV. J. P. BELLIER, Professor of Modern Languages. Resigned March 1, 1869.

AMERICUS FEATHERMAN, Professor of Modern Languages, since September 1, 1869.

REV. E. P. PALMER, Professor of Moral Philosophy and English Literature.

- F. V. HOPKINS, Professor of Chemistry.
S. B. ROBINSON, Instructor in Penmanship and Book-keeping.
T. L. GRIMES, Assistant Professor of Mathematics.
JOHN H. EADY, Assistant Instructor in Mathematics; session 1868-'69.
H. P. PACKARD, Assistant Instructor in Mathematics; session 1868-'69.
S. C. McCORMICK, Assistant Instructor in Mathematics; session 1869-'70.
R. W. NICHOLLS, Assistant Instructor in Latin; session 1868-'69.
G. D. TARLTON, Assistant Instructor in Latin; session 1869-'70.
PIERRE GASSIE, Assistant Instructor in French; session 1868-'69.
J. L. DESLATTES, Assistant Instructor in French; session 1869-'70.
A. L. JEWELL, Assistant Instructor in French; session 1868-'69.
L. L. BOURGES, Assistant Instructor in Greek; session 1869-'70.
S. H. LEWIS, Assistant Instructor in English; session 1869-'70.
A. A. GUNBY, Assistant Instructor in English; session 1869-'70.

ROLL OF CADETS.

31

NO.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
1	Achee, F. S.	Assumption.	September 7, 1868	Dismissed January 19, 1869.
2	Adkins, T. Y.	Texas.	October 2, 1868.	Resigned January 2, 1869.
3	Andrews, M. R.	Texas.	September 18, 1867...	
4	Bailey, Walter.	New Orleans	September 7, 1868	
5	Barnard, A.	St. Mary.	September 6, 1869.	
6	Barrow, H. C.	Pointe Coupée	November 20, 1867...	Dismissed January 15, 1869.
7	Beatty, H.	Pointe Coupée.	September 14, 1868.	
8	Beatty, W. L.	New Orleans	September 7, 1868.	
9	Beauregard, C. T.	New Orleans	February 19, 1869.	Resigned June 30, 1869.
10	Bell, B. M.	Texas.	October 6, 1869.	
11	Berger, John.	Terrebonne.	September 18, 1866.	
12	Berger, Robert.	Caddo	September 22, 1866.	
13	Bellingsley, J. J.	Morehouse	September 10, 1869.	
14	Blossat, F. A., Jr.	Rapides.	September 5, 1869.	Resigned September 12, 1869.
15	Blackburn, G. F.	Carroll.	November 17, 1869.	
16	Bourgeois, L.	St. James.	October 6, 1869.	
17	Bourges, L. L.	New Orleans	August 29, 1867.	Dismissed December 9, 1869.
18	Boyd, John L.	St. Martin	March 16, 1867.	Resigned June 30, 1869.
19	Boyd, T. D.	Virginia	October 13, 1868.	
20	Bringer, L. A.	St. James	September 2, 1867.	
21	Brooks, W. A.	New Orleans	September 6, 1868.	
22	Brosman, D. M.	New Orleans	September 14, 1867.	
23	Brown, W. S.	Terrebonne.	September 18, 1866.	
24	Calliham, D.	Avoyelles	November 24, 1868.	

CADETS—Continued.

NO.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
25	Calvit, M.	Rapides.	September 6, 1869.	
26	Campbell, T. B.	Jefferson.	October 6, 1868.	
27	Campbell, W. P.	Concordia.	December 5, 1867.	
28	Caughlin, John.	Natchitoches.	October 9, 1868.	Resigned June 30, 1869.
29	Chaffe, C. C.	Claiborne.	September 3, 1869.	
30	Colbert, A.	Bienville.	September 4, 1869.	
31	Compton, A. T.	Rapides.	March 12, 1868.	
32	Crandell, J. L.	Madison.	November 18, 1867.	Resigned August 26, 1869.
33	Cullom, E. A.	New Orleans.	September 6, 1869.	Resigned June 30, 1869.
34	Davidson, L.	Rapides.	September 8, 1869.	
35	Davis, I. I.	Caldwell.	February 14, 1869.	
36	Decker, A. H.	Plaquemines.	October 1, 1867.	
37	Delahoussaye, T.	St. Martin.	September 3, 1866.	Resigned June 30, 1869.
38	Deslattes, J. L.	St. James.	May 5, 1867.	
39	Dinkgrave, J. H.	Onachita.	September 16, 1868.	
40	Ducote, C. J.	Avoyelles.	September 3, 1866.	
41	Ducros, E. O.	St. Bernard.	April 10, 1866.	
42	Dunbar, E. M.	East Feliciana.	September 7, 1868.	
43	Eady, J. H.	St. Helena.	May 28, 1866.	Graduated June 30, 1869.
44	Easton, Warren.	New Orleans.	August 29, 1869.	
45	Edwards, B. F.	Avoyelles.	September 2, 1867.	
46	Edwards, H. S.	Iberville.	January 25, 1869.	
47	Edwards, T. B.	Iberville.	April 18, 1866.	Graduated June 30, 1869.
48	Elmore, J. P.	Livingston.	September 3, 1866.	

CADETS—Continued.

49	England, G. W.	New Orleans	September 7, 1868	
50	Evans, W. C.	New Orleans	September 7, 1868	
51	Feazle, Max.	Union	October 1, 1868	
52	Ferguson, James I.	New Orleans	September 7, 1869	
53	Ferguson, R.	New Orleans	August 19, 1867	
54	Finch, H. W.	New Orleans	August 27, 1867	
55	Fitzhugh, S. R.	New Orleans	October 18, 1866	
56	Francis, F. W.	Terrebonne	September 2, 1867	Dismissed June 30, 1869.
57	Fulford, E. A.	Jackson	November 23, 1865	Resigned June 30, 1869.
58	Gaennie, D. F.	Natchitoches	March 20, 1869	Resigned June 30, 1869.
59	Gallion, Z. T.	Natchitoches	January 8, 1867	Dismissed December 12, 1869.
60	Gassie, Pierre.	West Baton Rouge	May 26, 1866	
61	Geren, J. P.	Claiborne	September 3, 1866	Died at home, August —.
62	Goelet, J. G.	New Orleans	September 3, 1869	
63	Greening, H. R.	De Soto	September 5, 1869	
64	Grimes, T. L.	Avoyelles	October 2, 1865	Graduated June 30, 1869.
65	Gunby, A. A.	Claiborne	November 30, 1869	
66	Guyol, F. A.	New Orleans	September 3, 1867	Resigned June 30, 1869.
67	Guyol, S. L.	New Orleans	September 3, 1867	
68	Hadnot, G. W.	Grant	September 6, 1869	
69	Hadnot, J. P.	Grant	September 6, 1869	
70	Hadnot, L. H.	Grant	September 6, 1869	
71	Hadnot, W. L.	Grant	September 6, 1869	
72	Hart, E. N.	Orleans, right bank	September 7, 1868	Resigned June 30, 1869.
73	Harvey, H. A.	New Orleans	November 13, 1869	
74	Haskell, F. E.	Calcasieu	September 30, 1869	
75	Hawkins, G. T.	St. Landry	February 2, 1868	

CADETS—Continued.

NO.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
76	Hayden, G. M.	Washington.	May 28, 1866.	
77	Haynie, J. C.	Rapides.	January 20, 1867.	Resigned June 30, 1869.
78	Hays, W. L.	Mississippi.	September 10, 1868.	Resigned June 30, 1869.
79	Heath, J. P.	East Feliciana.	August 30, 1869.	
80	Hebert, A.	West Baton Rouge.	September 14, 1869.	
81	Hebert, P. O.	Madison.	October 5, 1869.	
82	Hill, J. J.	West Baton Rouge.	September 2, 1867.	
83	Hilliard, H. I.	Texas.	September 18, 1867.	Resigned January 2, 1869.
84	Hingle, R.	Plaquemines.	September 2, 1867.	
85	Hollingsworth, G. W.	Bienville.	September 4, 1869.	
86	Holtsberry, R. C.	New Orleans.	September 27, 1867.	Resigned June 30, 1869.
87	Hunt, E. F.	New Orleans.	September 19, 1869.	
88	Hunter, E. G.	Rapides.	September 6, 1868.	Resigned October 15, 1869.
89	Hymel, F. O.	Lafourche.	September 6, 1869.	
90	Hynson, P. H.	Rapides.	September 6, 1869.	
91	Inman, R.	Mississippi.	September 10, 1868.	Resigned June 30, 1869.
92	Jackson, S. T.	Carroll.	October 14, 1869.	
93	James, M.	Rapides.	September 6, 1869.	
94	Jewell, A. L.	Pointe Coupee.	September 7, 1867.	Resigned June 30, 1869.
95	Jos rion, P. E.	Pointe Coupee.	September 6, 1869.	
96	Johnson, C. K.	Rapides.	September 7, 1868.	Resigned June 30, 1869.
97	Johnson, M.	De Soto.	September 5, 1869.	
98	Johnson, O.	Rapides.	September 7, 1868.	Resigned June 30, 1869.
99	Kerr, C. M.	St. Mary.	January 4, 1868.	Resigned June 30, 1869.

100	Kerr, F. M.	St. Mary.	November 24, 1860.	
101	Kile, J. H.	Natchitoches.	December 17, 1869.	
102	Knoloch, G.	Lafourche.	September 2, 1867.	
103	Kratz, R.	New Orleans.	September 6, 1869.	
104	Lannaux, J. S.	New Orleans.	April 9, 1866.	Dismissed January 29, 1869
105	Landry, J. O.	Ascension.	September 3, 1867.	Resigned June 30, 1869.
106	LeBlanc, F. S.	Ascension.	May 9, 1868.	
107	Lewis, C. C.	Tensas.	December 17, 1867.	
108	Lewis, J. H.	Orleans, right bank.	September 7, 1869.	
109	Lewis, S. H.	East Baton Rouge.	September 3, 1866.	
110	Lowry, J. A.	Bossier.	September 3, 1866.	
111	Lusk, A. A.	New Orleans.	May 7, 1866.	
112	McCollum, H. A.	Terrebonne.	November 10, 1865.	Resigned January 30, 1869.
113	McCormick, S. C.	Union.	October 13, 1866.	Graduated January 30, 1869.
114	McDonald, G. W.	Claiborne.	September 3, 1869.	
115	McDonald, W. D.	Jackson.	September 2, 1867.	
116	Mandall, A.	New Orleans.	January 10, 1869.	Resigned February 4, 1869.
117	Marshall, G. O.	Rapides.	September 4, 1869.	
118	Martin, R.	New Orleans.	September 6, 1869.	
119	Mather, L. J.	St. James.	June 3, 1867.	
120	Matthey, J. H.	New Orleans.	August 27, 1867.	
121	Menge, Joseph.	Plaquemines.	September 3, 1867.	
122	Messey, W. O.	West Feliciana.	September 3, 1866.	
123	Montgomery, T. F.	Carroll.	February 22, 1866.	
124	Montgomery, V.	Carroll.	September 3, 1866.	Graduated June 30, 1869.
125	Mosa, T. A.	Caldwell.	October 10, 1866.	Resigned January 15, 1869.
126	Neal, F. A.	Rapides.	September 5, 1869.	Dismissed January 1, 1869.

CADETS—Continued.

NO.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
127	Nicholls, R. W.	Assumption	January 8, 1866	Graduated June 30, 1869.
128	Norwood, D. I.	East Feliciana	August 30, 1869	
129	Ogilvie, A. F.	Caddo	March 12, 1868	Dismissed October 1, 1869.
130	Oliver, C. H.	New Orleans	September 6, 1869	
131	Packard, H. P.	New Orleans	April 9, 1866	Graduated June 30, 1869.
132	Parker, C. C.	Carroll	December 18, 1869	
133	Parkerson, J. R.	St. Mary	August 31, 1866	
134	Parnele, F. F.	New Orleans	September 2, 1867	
135	Pasquier, C. M.	Assumption	May 2, 1868	
136	Pegues, W. P.	De Soto	September 5, 1869	Resigned October 15, 1869.
137	Perkins, J. L.	East Feliciana	August 30, 1869	
138	Perkins, W. C.	East Feliciana	October 6, 1869	Resigned June 30, 1869.
139	Pettiss, W. K.	Morehouse	September 10, 1867	
140	Peyroux, L. P.	New Orleans	September 5, 1868	
141	Pierson, Joseph	Bienville	April 6, 1866	Graduated June 30, 1869.
142	Pipes, M. L.	De Soto	January 6, 1869	
143	Pratt, Geo. K.	St. Landry	November 8, 1865	
144	Proffitt, James	Ascension	November 24, 1869	
145	Pugh, Thomas	New Orleans	January 8, 1866	
146	Radesich, L. P.	Winn	September 3, 1866	
147	Raney, J. W.	Texas	October 9, 1868	
148	Ransdell, John	Rapides	January 14, 1866	Resigned March 14, 1867.
149	Ranson, N.	St. Charles	March 30, 1868	
150	Rawlings, R. T.	Catahoula	September 22, 1868	

151	Redlich, H. B.	New Orleans.	October 4, 1869	
152	Ringgold, J. H.	Rapides	June 21, 1867	
153	Roberts, James J.	Rapides	September 6, 1869	
154	Roberts, N. R.	Rapides	October 16, 1865	
155	Ruleff, Willis	New Orleans.	November 4, 1869	
156	Schneider, P.	New Orleans.	September 7, 1868	
157	Schmidt, F. O.	New Orleans.	March 12, 1868	Resigned June 30, 1869.
158	Scott, T. B.	Madison.	November 24, 1869	
159	Scranton, G. W.	Lafayette.	November 9, 1868	
160	Sibley, J. T.	New Orleans.	September 7, 1868	
161	Simmons, F. J.	Claiborne.	April 10, 1869	Dismissed September 18, 1869.
162	Smith, John	Bossier.	April 9, 1868	
163	Smith, Jos. D.	West Feliciana.	November 20, 1867	
164	Smith, W. J.	Rapides	September 14, 1869	
165	Speight, J. W.	Sabine.	January 16, 1869	Dismissed February 2, 1869.
166	Stacey, J. A.	Mississippi.	September 6, 1869	
167	Stafford, Leroy	Rapides	October 12, 1869	
168	Stampley, P. D.	Tensas.	December 17, 1867	Resigned November 24, 1869.
169	Stith, W. B.	New Orleans.	January 12, 1868	Dismissed January 2, 1869.
170	Stoker, C. W.	Sabine.	November 24, 1869	
171	Street, G. C.	Jefferson.	September 2, 1867	
172	Strickland, M. A.	St. Helena.	September 6, 1860	
173	Stuart, F. P.	New Orleans.	January 16, 1869	
174	Stuart, R. S.	New Orleans.	September 2, 1867	
175	Stubbs, A. B.	Jefferson.	September 3, 1866	Dismissed June 30, 1869.
176	Sutherland, E. W.	DeSoto.	September 2, 1867	
177	Tanner, L.	Rapides.	September 20, 1869	

CADETS—Continued.

NO.	NAMES.	RESIDENCES.	DATE OF ENTRANCE.	REMARKS.
178	Tarleton, G. D.	St. Landry	December 22, 1867.	
179	Tarleton, Leo.	Iberia.	September 4, 1869.	
180	Tassin, J. H.	St. John Baptist.	September 7, 1868.	
181	Texada, L. M.	Rapides.	September 6, 1869.	
182	Texada, W. F.	Rapides.	September 6, 1869.	
183	Thompson, A. J.	St. Helena.	September 6, 1869.	
184	Thompson, C. J.	St. Landry.	October 18, 1868.	
185	Veazie, E. P.	St. Landry.	September 25, 1867.	
186	Viguerie, F. C.	Terrbonne.	October 11, 1869.	
187	Villavaso, W. N.	New Orleans.	September 7, 1868.	
188	Waddell, A. K.	East Baton Rouge.	September 3, 1867.	
189	Weaver, F. C.	New Orleans.	September 6, 1869.	
190	Welch, S. N.	Concordia.	September 8, 1868.	
191	White, J. B.	East Feliciana.	August 30, 1869.	
192	Whiting, F. S.	Texas.	November 2, 1869.	
193	Wilson, T. P.	St. Mary.	August 31, 1868.	
194	Wolff, J. L.	East Baton Rouge.	September 6, 1869.	
195	Womack, L. J.	Texas.	October 9, 1868.	
196	Zim, Louis.	Franklin.	September 7, 1868.	

Resigned June 30, 1869.

Resigned June 30, 1869.

Total number of Cadets in attendance during the year 1869. 196
 Beneficiaries 113
 Private Cadets 83

D. F. BOYD, Superintendent.

Louisiana State Seminary, December 31, 1869.

**GRADUATES OF LOUISIANA STATE SEMINARY—SESSION
1868-69.**

NAMES.	RESIDENCE.	OCCUPATION.
Eady, J. H.....	St. Helena Parish..	Teacher.
Edwards, T. B...	Iberville Parish....	Teacher.
Grimes, T. L....	Avoyelles Parish..	Assistant Professor Mathe- matics, Louisiana State Seminary.
McCoHam, H. A..	Terrebonne Parish.	Student at Union, Va.
Montgomery, T. F.	Carroll Parish.....	Civil Engineer.
Nicholls, R. W...	Assumption Parish.	Student of Law.
Packard, H. P....	New Orleans.....	Teacher.
Pierson, Joseph..	Bienville Parish....	Teacher.

D. F. BOYD, Superintendent.

REPORT OF TREASURER.

11

D. F. BOYD, Superintendent and Treasurer.

EXPENSE ACCOUNT.

To amount paid Faculty.....	\$13,249 12
To amount paid sub-officer.....	1,658 34
To amount paid employes in seminary building.....	3,520 90
To amount paid employes in laundry.....	1,216 29
To amount paid employes on old accounts.....	724 69
To amount paid ferriage at Alexandria.....	127 20
To amount paid forage.....	371 76
To amount paid freight.....	877 37
To amount paid fuel and lights.....	396 36
To amount paid furnishing goods.....	244 26
To amount paid glass and hardware.....	42 60
To amount paid hauling and drayage.....	214 75
To amount paid incidental expenses.....	38 25
To amount paid insurance.....	104 08
To amount paid iron and wood work.....	52 50
To amount paid lumber.....	1 00
To amount paid medicines.....	312 68
To amount paid old accounts and sundry expenses.....	4,767 77
To amount paid printing and advertising.....	2,441 85
To amount paid postage and revenue stamps.....	156 28
To amount paid provisions.....	10,085 03
To amount paid repairs of furniture and utensils.....	105 85
To amount paid stationery.....	864 56
To amount paid text books.....	909 40
To amount paid for tools and implements.....	49 30
To amount paid transportation from Alexandria	686 01
	<u>\$43,218 20</u>

STATE CADETS' ACCOUNT.

1869.

Dr.

January 1, to balance due per last annual statement....	\$9,842 33
January 31, to tuition, fees, board, etc., of eighty-seven cadets, at \$40 per month....	\$3,480 00
February 28, to tuition, fees, board, etc., of eighty-five cadets, at \$40 per month.....	3,400 00
March 31, to tuition, fees, board, etc., of eighty-five cadets, at \$40 per month.....	3,400 00
April 30, to tuition, fees, board, etc., of eighty-five cadets, at \$40 per month.....	3,400 00
May 31, to tuition, fees, board, etc., of eighty-five cadets, at \$40 per month.....	3,400 00
June 30, to tuition, fees, board, etc., of eighty-four cadets, at \$40 per month.....	3,360 00
September 30, to tuition, fees, board, etc., of eighty-two cadets, at \$35 per month.	2,870 00
October 31, to tuition, fees, board, etc., of eighty-three cadets, at \$35 per month....	2,905 00
November 30, to tuition, fees, board, etc., of eighty-eight cadets, at \$35 per month..	3,280 00
December 31, to tuition, fees, board, etc., of eighty-seven cadets, at \$35 per month..	3,245 00
	<u>32,740 00</u>
	<u>\$42,582 33</u>

Cr.

By State cadet warrant, fourth quarter, 1869, \$9,800.....	\$7,815 50
By amount advanced by Citizens' Bank on State cadet warrant, first quarter, 1869, as per ac- count current.....	5,731 70
By amount advanced by Citizens' Bank on State cadet warrant, second quarter, 1869, as per account current.....	5,731 70
By State cadet warrant, third quarter, 1869, \$9,800, \$5,000 only disposed of.....	3,370 00
By amount of State cadet warrant, second quarter, 1867, \$9,800, sold by Citizens' Bank for \$8,330.....	8,330 00
	<hr/> \$30,978 90
Balance.....	<hr/> \$11,603 43

On hand unsold, portion of State cadet warrant, third quarter, 1869.....	\$4,800 00
To be drawn, State cadet warrant, fourth quarter, 1869..	9,800 00

Board of Supervisors.

To amount paid for traveling expenses, etc.....	\$567 00
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REFITTING, REPAIRS AND IMPROVEMENTS OF GROUND 3.

At Seminary in Alexandria.

To amount paid for labor on Seminary grounds.	\$1,103 83
To amount paid carpenters and joiners, as per pay rolls.....	855 00
To amount paid painters.....	1,147 00
To amount paid bricklayers and whitewashers.	155 00
To amount paid employes in arrears.....	427 74
To amount paid for freight on lumber and ma- terials.....	285 21
To amount paid for hauling.....	154 10
To amount paid for transportation of workmen.	48 00
To amount paid for crockery, glassware, etc..	412 30
To amount paid for furniture.....	503 33
To amount paid for repairs, etc.....	12 25
To amount paid for incidental expenses.....	9 00
To amount paid for materials for repairs.....	786 67
To amount paid for lumber.....	565 66
To amount paid for linen, bedding, etc.....	322 50
To amount paid for trees and shrubs.....	81 35
To amount paid Newton Richards for replacing tablet over entrance and materials.....	108 85
To amount paid steamer St. Nicholas, one bell and fixtures.....	150 00

To amount paid for digging well.....	25 00	
To amount paid Van & Sons, 1 double oven..	518 45	
To amount paid Van & Sons, 1 bake oven....	211 25	
To amount paid for pumps and fixtures.....	93 76	
To amount paid Allen, Hill & Co., lamps and chandeliers.....	227 10	
To balance due on Janear property.....	339 87	
To amount paid Ball, Lyons & Co., paints....	567 85	
To amount paid Adam Turnbull, engineer, for planning buildings, laying off grounds, etc.	535 00	
		<hr/>
		\$9,646 07

At Baton Rouge.

To amount paid for freight.....	\$209 75	
To amount paid for crockery and glassware...	24 60	
To amount paid for furniture.....	598 75	
To amount paid for dray.....	21 23	
To amount paid for repairs, etc.....	2 50	
To amount paid for making linen.....	51 35	
To amount paid for hardware.....	10 35	
To amount paid for furnishing goods.....	44 75	
		<hr/>
		963 30
To amount paid for mechanics' labor.....	80 00	
		<hr/>
		\$10,689 37

PROFESSORS' HOUSES.

To amount paid for purchase of Irving House and grounds..	\$1,000 00	
To amount paid David Irving for repairs on Irving House..	30 80	
To amount paid for materials for repairs.....	200 00	
To amount paid E. G. Leckie for deed of Irving property..	20 00	
To amount paid for copy of deed.....	4 00	
To amount paid for mechanics' labor on Irving House.....	100 00	
To amount paid Adam Turnbull for plans of houses.....	100 00	
		<hr/>
		\$1,454 80

Apparatus, and Library and Cabinets.

To amount paid for library, books, maps, magazines, litho- graphs and engravings.....	\$2,227 03	
To amount paid for philosophical and engineering appara- tus, and freight on specimens for cabinets.....	1,592 28	
To amount paid for statuary.....	49 73	
		<hr/>
		\$3,869 04

Geological Survey.

To amount paid on account of outfit.....	\$185 75
To amount paid for traveling expenses.....	377 00
To amount paid for chemical apparatus.....	43 70
	<hr/>
	\$606 45

CONTINGENT EXPENSES.

To amount paid for incidentals for funerals of Prof. J. M. Boyd and Rev. J. P. Bellier.....	\$7 50
To amount paid for incidentals at commencement exercises.	190 00
To amount paid to Citizens' Bank on account of deficit on loan of \$9000, October 2, 1865, with interest at 6 per cent. per annum.....	\$10,917 00
Less amount paid by sale of warrants, January 2, 1867.....	8,330 00-2,587 00
To amount paid for revenue stamps and interest on extension of notes to Citizens' Bank.....	302 60
	<hr/>
	\$3,087 10

D. F. BOYD,
Superintendent and Treasurer.

<p>1869.</p> <p>Dec. 31.</p>	<p>\$21,744 90</p> <p>3,521 79</p> <p>1,467 25</p> <p>2,369 53</p> <p>412 30</p> <p>1,080 00</p> <p>9,166 20</p> <p>786 32</p> <hr/> <p>\$45,558 29</p>
<p>To amounts due merchants and tradesmen, as per ab-</p> <p>tract.....</p> <p>Due professors, 1869, as per abstract.....</p> <p>Due sub-officers, 1869.....</p> <p>Due other employes, 1869.....</p> <p>Due employees arrears, 1867-68.....</p> <p>Due on living property, note \$1000, with interest at 8</p> <p>per cent.....</p> <p>Due on appropriations for buildings.....</p> <p>Due on appropriations for improvements of grounds,</p> <p>etc., etc.....</p>	<p>\$732 67</p> <p>\$309 00</p> <p>1,268 00</p> <p>1,296 53</p> <p>1,840 36—</p> <p>3,648 00</p> <p>3,416 00</p> <p>7,448 00—</p> <p>8,420 00</p> <p>17,599 73</p> <p>\$45,558 29</p>
<p>By balance on hand, cash.....</p> <p>By fees due from Cadets, session 1865-66.....</p> <p>By fees due from Cadets, session 1866-67.....</p> <p>By fees due from Cadets, session 1867-68.....</p> <p>By fees due from Cadets, session 1868-69.....</p> <p>Unexpended amount of State Cadet Warrent, third quarter, 1869, \$4,800, est. at 76c.....</p> <p>In Citizens' Bank, \$21,600, est. at 76c, less currency borrowed, \$13,000.....</p> <p>State Cadet Warrent, fourth quarter, 1869, \$3,900, as above.....</p> <p>(\$1,751 92 U. S. notes to be transferred to appropriation for buildings and improve-</p> <p>ments.)</p> <p>Annuity Warrent, U. S. Treasury notes.....</p> <p>(To be transferred to appropriations for buildings and improvements.)</p> <p>Balance.....</p>	

D. F. BOYD, Superintendent and Treasurer.

Value of Provisions, Text Books, etc., on hand January 1, 1870.

Provisions, as per purchase bills.....	\$516 99
Text books, etc.....	3,196 15
13½ cords wood, at \$1 35	167 25
	<hr/>
	\$3,840 39

D. F. BOYD, Superintendent and Treasurer.

TABULAR STATEMENT

Of the Current Expenses of the Louisiana State Seminary of Learning and Military Academy for the Year 1863.

	January.	February.	March.	April.	May.	June.	July, aver.	Aug. av'r.	Septem'r.	October.	Nov-ber.	December.	TOTAL.
	Average	Average	Average	Average	Average	Average	Age No. of Ca-	Age No. of Ca-	Average	Average	Average	Average	
	No. of Ca-	No. of Ca-	No. of Ca-	No. of Ca-	No. of Ca-	No. of Ca-	dets pre-	dets pre-	No. of Ca-	No. of Ca-	No. of Ca-	No. of Ca-	
	dets pre-	dets pre-	dets pre-	dets pre-	dets pre-	dets pre-	sent—va-	sent—va-	dets pre-	dets pre-	dets pre-	dets pre-	
	sent, 111.	sent, 117.	sent, 117.	sent, 117.	sent, 117.	sent, 115.	cation.	cation.	sent, 115.	sent, 128.	sent, 121.	sent, 131.	
Academic Board.....	\$2,000 00	\$1,000 00	\$1,500 00	\$1,615 00	\$1,615 00	\$1,615 00	184 67	150 00	\$1,958 33	\$1,792 50	\$1,602 10	\$1,645 00	\$17,232 93
Sub Officers.....	150 00	150 00	222 00	240 00	211 67	190 00			160 00	160 00	160 00	160 00	2,138 34
Employees in Seminary Building.....	379 87	371 81	351 47	304 99	332 17	377 67	208 80	165 14	280 00	100 43	275 35	314 06	3,662 45
Sundry Employees.....	123 47	114 00	124 00	124 00	120 34	118 73	96 07	36 60	119 57	70 70	95 04	126 93	1,285 47
Sundry other expenses.....	26 93	23 10	22 41	20 24	20 21	32 20	7 50	7 50	25 20	26 00	23 22	40 45	270 47
Lights.....	1,370 97	1,325 67	1,405 27	1,370 89	1,445 90	1,795 08	381 78	381 78	1,000 70	660 00	1,182 54	2,024 67	275 02
Commissary Stores.....	175 69	137 50	182 16	144 30	66 88				690 30	265 60	648 95	175 95	14,315 91
Text Books, etc.....	77 00	87 16	105 46	87 46	102 16	87 16			69 23	69 23	97 51	108 82	2,427 23
Stationery and Incidentals.....	100 00	75 00	45 00	35 00	35 09	30 00	30 00	30 00	45 00	40 00	146 45	275 00	891 28
Fuel.....	13 85	27 70	19 30	13 90	45 00	36 00	17 45	25 45	34 53	19 25			886 46
Freight and storage, Pineville.....													263 05
Freight on provisions and text books, Baton Rouge.....	82 80	102 35	47 45	50 65	63 75	47 75					28 28	23 28	56 60
Forage.....	25 00	25 00	25 00	25 00	25 00	25 00			25 00	25 00	25 00	23 85	435 72
Medicine and Medical attendance.....													248 85
Expenses for month.....	\$4,525 70	\$4,349 29	\$4,168 35	\$4,090 82	\$4,103 11	\$4,355 79	\$2,046 27	\$1,796 47	\$4,908 03	\$3,174 61	\$1,252 41	\$5,217 07	\$44,350 73
Monthly expense per Cadet.....	\$40 77	\$37 17	\$35 12	\$34 45	\$34 45	\$37 87			\$37 46	\$24 83	\$38 14	\$30 82	
Daily.....	\$1 3	\$1 32	\$1 13	\$1 14	\$1 11	\$1 26			\$1 24		\$1 17	\$1 28	

*These amounts were expended in vacation on account of the Board of Officers and Employees, and of Mechanics and Laborers engaged in repairs of Buildings and improvement of grounds.

†This small amount of expense was due to the furlough of Cadets during the last half of the month.

D. F. BOYD, Superintendent.

PAY OF OFFICERS.

D. F. BOYD, Superintendent, Treasurer and Professor of Mathematics, \$3,000 per annum, with quarters.

SAM. H. LOCKETT, Commandant of Cadets and Professor of Engineering and Natural Philosophy, \$2,500 per annum, with quarters.

Dr. F. V. HOPKINS, Surgeon and Professor of Chemistry, \$2,500 per annum, with quarters.

Rev. E. P. PALMER, Protestant Chaplain and Professor of Moral Philosophy, \$2,500 per annum, with quarters.

C. W. HUTSON, Professor of Greek, \$2,000 per annum, with quarters.

JOHN P. McAULEY, Professor of Latin, \$2,000 per annum, with quarters.

A. FEATHERMAN, Professor of Modern Languages, \$2,000 per annum, with quarters.

T. L. GRIMES, Assistant Professor of Mathematics, \$500 per annum, with board and quarters.

S. B. ROBINSON, Instructor in Penmanship and Book-keeping, \$50 per month.

J. L. DESLATTES, Assistant Instructor in French, \$20 per month.

G. D. TARTLTON, Assistant Instructor in Latin, \$20 per month.

A. A. GUNBY, Assistant Instructor in English, \$20 per month.

S. H. LEWIS, Assistant Instructor in English, \$20 per month.

SUB-OFFICERS.

S. B. ROBINSON, Clerk and Business Agent, \$100 per month, with board.

One Steward and Storekeeper, \$60 per month, with board.

One Bugler, \$25 per month, with board.

Kitchen—Three Cooks, \$78 ; one Dishwasher, \$18.

Mess Hall—Five Waiters, \$18 ; one Pantryman, \$20.

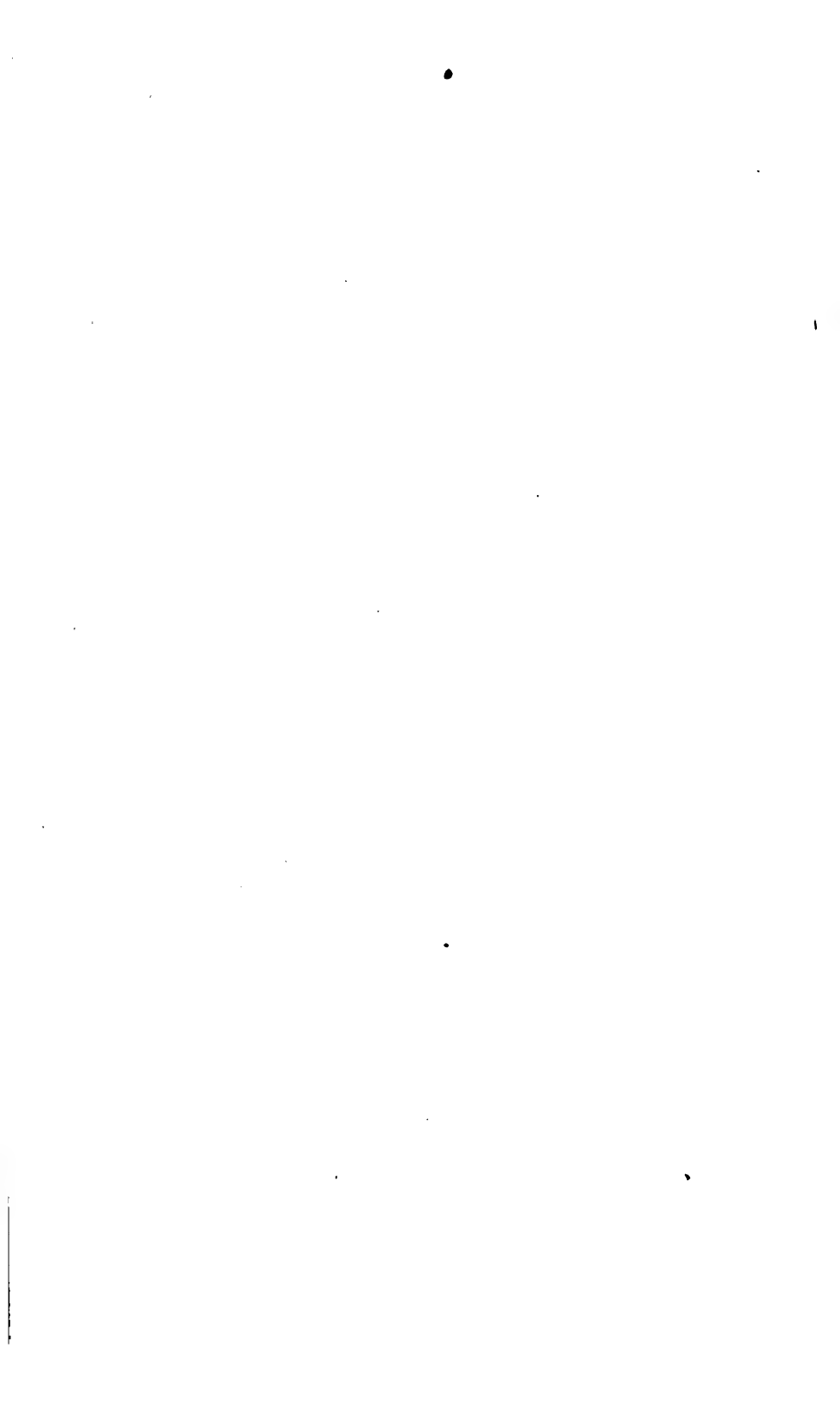
Seminary Building—Four Employes, \$70 ; one Lamp Trimmer, etc., \$20.

Outdoor Employes—One Woodcutter, \$15 ; one Fatigue Hand \$15 ; one Teamster, \$15.

Laundry—Three Washers, \$1 per day, without board ; four Ironers, 65c. per day, without board.

One Watchman, \$25 per month, with board.

D. F. BOYD, Superintendent.



F .
REPORT
OF
TOPOGRAPHICAL SURVEY OF PART OF LOUISIANA,
MADE DURING THE MONTHS OF JULY AND AUGUST, 1869,
BY COLONEL SAMUEL H. LOCKETT.

Professor of Engineering, Louisiana State Seminary, etc.

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TOPOGRAPHICAL MEMOIR.

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LOUISIANA STATE SEMINARY,
BATON ROUGE, December 23, 1869.

Colonel D. F. Boyd, Superintendent Louisiana State Seminary:

SIR—On or about the third day of last July I received from you a letter of instructions, directing that Doctor F. V. Hopkins and myself proceed at once to commence a topographical and geological survey of the State of Louisiana, as required by an act of the Legislature, No. 72, and approved March 6, 1869. I beg leave to state, that in obedience to those instructions we left the State Seminary on the sixth of July, and began at once active operations in the field. These operations were continued during the greater part of the months of July and August, and the following I would respectfully submit as a report of the results of our labors, in so far as they relate to the topographical part of the survey.

Having been informed several months previous to the close of the last academic session, that this work would be required of us, and knowing that the time which would be at my disposal, for actual work in the field, would be exceedingly limited in comparison with the magnitude of the task assigned to me, I determined at once to avail myself of all possible, reliable sources of information concern-

ing the configuration of the surface of the State. With this end in view, I wrote to several citizens of the State, whose occupations and positions, I supposed, would put them in possession of books, maps, charts and other records, that might be of service to me, and requested the use of any such, for the purpose of making copies and notes. I regret to have to state, that in not a single instance, were my communications replied to. I also wrote to General A. A. Humphreys, Chief Engineer of the United States Army, at Washington, and made the same request; and I take pleasure in acknowledging the promptness and courtesy with which my application for assistance was received. General Humphreys sent me, almost by return mail a package of valuable maps and sketches, which have been, and will continue to be, of great service. I also beg leave to acknowledge my indebtedness to you, for the use of a large manuscript map, prepared by Major R. M. Venable, during the late war, which contains much detailed information, not to be found elsewhere. Other sources of information, and the assistance of other gentlemen, will be duly acknowledged in their appropriate places.

As a report of my last summer's operations will necessarily be very partial and preliminary, I shall not attempt to put it into anything like its final shape; but will make it rather in the form of a journal, so as to give you a more exact idea of what was done, and how it was done; and then I shall endeavor to mark out what yet remains to be accomplished, and will make some suggestions as to the means and measures I think necessary, to make the success of our undertaking commensurate with its importance.

The following parishes were visited and examined, in part, last summer; namely, by myself and Dr. Hopkins together: Rapides, Caldwell, Jackson, Catahoula, Ouachita, Richland and Morehouse; by myself alone, East Baton Rouge, Livingston, and East Feliciana, and by Dr. Hopkins alone, St. Landry, Calcasieu, Natchitoches, Winn and Grant.

RAPIDES.

The parish of Rapides being the former site of the State Seminary, was of course the object of our study some time before active operations were commenced in the field. This parish, lying nearly in the centre of the State, and being one of its largest parishes, possesses within its own limits nearly all the peculiar features of Louisiana.

About a hundred miles in extent from East to West, and nearly half that much from North to South, it almost equals in area some of the smallest States of the Union, and without doubt is capable, from the great fertility of its soil, and variety of its resources, of almost equaling them in wealth and importance.

Topographically, like many of the other parishes, it may be divided into three areas, namely: the alluvial arable lands, the swamp lands, and the hill country—the last being the largest in extent, the first being the most important, from an economical point of view.

The alluvial lands lie mainly in a body, along the Red river, spreading out towards the south and west at and below Alexandria, and extending in a northerly direction after passing the Falls above that city. On the south bank, these level lands average from ten to twelve miles in width, while those on the opposite side of the river are never much more than half so broad. The peculiar beauty and fertility of this region is justly celebrated throughout the entire State. Being a deep deposit of the rich gypseous sediment of Red river which is constantly renewed by every overflow, the soil may be considered absolutely inexhaustible; and when, as will no doubt one day be the case, railroads shall intersect this section, and the numerous bayous which now wind uselessly through it, shall be changed into navigable canals, no limit can easily be imagined to the possible wealth and prosperity of so favored a region. Even the swamps, which always accompany the bottom lands of this State, are not so extensive as usual in comparison with the area of arable surface. I cannot give even an estimate of the extent of the swamps, but will state that they lie principally along and parallel to Bayous Boeuf and La Mourie. The rest of the parish, extending westward to the Texas line, and northward to Grant parish, and eastward to Catahoula, is made up almost entirely of pine hills, that great characteristic feature of the Gulf States.

All of this area, excepting the narrow bottoms of the creeks and smaller streams, is covered with a heavy growth of long leaf southern pine, which stands without a rival as a timber tree. The soil of the hills is generally thin and sometimes very poor, but in its natural state is covered by a rank growth of grass, thus converting an almost barren area into an immense, and unfailing pasturage for cattle. The valleys of the creeks and bayous, which are quite nu-

merous in this "piney woods region," are fertile, especially when fresh, and produce a fine quality of upland cotton.

Several of the special features of the parish of Rapides require more than a general mention.

The net work of bayous, already alluded to, is certainly a feature of considerable importance. These bayous are all naturally connected with each other, and competent engineers, who have carefully examined them, are of the opinion, that one and all of them could be made into serviceable canals, at comparatively small cost, thus becoming certain, easy, and cheap channels for the shipment of the immense crops that are produced upon their banks. How soon they shall become so, and the impassable roads of the country be abandoned, with all their concomitants of exhausted teams, broken wagons, and injured produce, is certainly a question worthy of the most serious consideration, on the part of those interested.

The falls one mile above Alexandria, on Red river, though scarcely entitled to the name of falls, yet deserve to be especially mentioned, as being the first serious obstruction to low water navigation. They are a mere series of rapids, caused by a ledge of sandstone that crosses the bed of the stream from the pine hills that here abut against the river. As to the practicability of removing this obstruction there can be no doubt, and that the great amount of trade of Red river would justify the attempt at so doing, there can also be no doubt. Scarcely a year passes but some serious disaster happens to the steamboats that venture to pass these falls in an unfavorable stage of water. It is more than probable, the cost of any single boat, that has been lost on or near this obstruction, would be amply sufficient to remove all danger in its passage.

The great abundance of pure fresh water of the hill country also deserves especial notice, as well as the numerous clear running streams that give life to what would otherwise be almost a sterile region. Among these, Bayou Flaggon, Little Clear and Big Clear creeks were visited by us last summer, and all were found to afford an unfailing supply of water, and to have fall sufficient for mill purposes. They also abound in splendid fish of all the usual varieties found in running streams, and in the older States would undoubtedly be places of resort for the sport afforded by their waters, and the game of their densely wooded bottoms.

When I first began my investigations I expected, and endeavored to give information of a statistical character from the parish officers and the older settlers; but I soon found that all inquiries in that direction were fruitless, as no one seemed to have kept a record of such matters since the war. I can, therefore, give only such figures as were applicable in 1860, and believing that they will be of some interest and service, I beg leave to transcribe the following, from a map sent me by the Chief Engineer of the United States army :

White population of Rapides, 9,711; colored population, 15,444; improved land, 105,839 acres; horses and mules, 8544; neat cattle, 33,233; swine, 44,745; corn, 820,378 bushels; ginned cotton, 49,168 bales; sweet potatoes, 98,880 bushels. This includes that part of the parish which has since been incorporated in the parish of Grant, recently created by act of the Legislature.

CATAHOULA.

Dr. Hopkins and myself spent thirteen days, between the seventh and twentieth of July in studying the parish of Catahoula. This parish is separated from Rapides by Little river which we crossed at La Croix's ferry on the Alexandria and Harrisonburg road. At this point Little river is about 150 yards in width at high water; is a beautiful, clear quiet stream, navigable for steamers of any size in winter and spring months, and for small steamers up to the junction of Dugdemona river and Bayou Castor at all stages of water. On the west bank of Little river a second bottom entirely above overflow strikes the river, at this point, while on the opposite the bottom is low, and flat and subject to overflow to the depth of from six to eight feet, and is not capable of cultivation, but densely wooded with cypress, gums and water oaks. One mile from the ferry the fine hills again appear, and then continue in unbroken monotony to Harrisonburg.

Looking at the map of Catahoula parish, it will be seen that the Ouachita river divides it into two unequal portions, the larger lying to the west of that stream. This latter may itself be subdivided into two portions by an irregular line following the northern boundary of Lake Catahoula, to its most easterly point, and thence to the town of Harrisonburg. All north of this line is a rolling, hilly country, with the exception of the narrow creek and bayou bottoms, while all south

is level and mostly subject to overflow. Included in this latter division, but hardly to be considered a part of it from their intrinsic difference of character, are the Catahoula, and Halloway's Prairies, two of those peculiarly rich, black, loamy spots found scattered with strange irregularity over much of this State. These prairies are very similar to the "cane-brake" region of western Alabama, and east Mississippi, but are never so extensive within the limits of this State, as in those.

It is common to call all of the northern part of Catahoula parish the "piney woods country." But this, while in general a correct designation, is eminently a misnomer of some sections of even the hilly lands. On a line from the mouth of Trout Creek to Harrisonburg the country is all covered with the long leaf pine, and so it is north and south of this line for several miles. But starting at the mouth of Dugdemona river and Castor bayou, and sweeping in a curve bearing towards the northeast and convex toward the south, striking the Ouachita at Grand river eight miles below Columbia, the surface of the country, the nature of the soil, and the forest growth present a strong contrast to the genuine pine regions. Near our initial point, lying along Castor bayou, some four or five miles in length, and averaging about a mile in width, is a belt of the black prairie land of great fertility, although quite hilly. Then for ten miles, the land lies almost level, the soil is stiff and clayey, and called by the inhabitants "hog wallow" land, from the deep mud holes made in wet weather. The soil is not good, the forest growth being mainly post oak and small hickory trees. But the greatest disadvantage under which this belt of land labors, as an agricultural country, is its absolute destitution of water, no natural springs, or unfailing streams exist, and wells have to be dug of great depth to reach water, and when obtained, it is generally unfit for use from the presence of salt, or sulphur, or the foetid odors of the lignitic strata. Proceeding further on our curve, the country becomes more hilly, but retaining the same general characteristics until we reach the Grandview country on the Ouachita. Here the hills are very high and steep, and the ridges narrow and sinuous, but all covered with rich black soil, which is filled with marine shells and the remains of the huge zenglodon, thus evidencing its marine origin. All of this belt is a waterless region, and most of it, for that reason, is uninhabited. If artesian wells could be bored within its limits, of any reasonable depth, it could be vastly improved, and as the soil has an abundance of lime in its composition, even the poorer por-

tions of it might be made fine lands by a proper system of cultivation and manuring.

As before remarked, the pine hills extend to Harrisonburg, become quite steep, and almost rugged in many places, capped with sand rock, and containing several ledges of the same along their slopes. And finally at Harrisonburg they present a bold bluff of some 120 to 130 feet in height, at the bottom of which the town lies. From the top of this bluff is an extensive and pleasing view of the valley of the Ouachita, but it is lacking in picturesqueness from its monotony. Harrisonburg itself is a small village, containing not more than thirty houses, and gives but few signs of life and enterprise. At this point the Ouachita river is 200 yards in width, and navigable at all seasons of the year; but three miles above the Catahoula shoals, corresponding to Red river falls, and formed like them, fix a limit to safe low water navigation.

At Harrisonburg, one of the strange paradoxes of the valley of the Mississippi, is illustrated. The plateau upon which the town stands is scarcely ever overflowed, and yet it is nine feet below the level of the banks of the Mississippi river at Vidalia, as was discovered by a section made by Captain Humphreys and Lieutenant Abbott in their investigation of the valley of the Mississippi.

Above Harrisonburg, and on the opposite side of the Ouachita, lies the fairest portion of Catahoula parish, namely, Sicily Island. This island, which is about twenty-five miles in length, and half as much in average breadth, is peculiar in several respects. In the first place it contains the only pine hills of any considerable height lying east of the Ouachita within the boundaries of this State. These hills are nearly mountainous in elevation, reaching a height of at least one hundred and fifty feet; are steep, rugged and rock-strewn, and evidently a continuation of a chain on the western side of the river. Through this chain the Ouachita must have forced its way. The area covered by these hills is from ten to twelve miles in length and about five miles in width at their maximum breadth. Among them, bluffing towards the Ouachita, is a steep knoll known as the "Cash Knob," and said to be so named from a traditional treasure deposited there, either by the old river pirate Maçon, or the Indians after their attack and sacking of the old Spanish settlement of Natchez.

At the base of this range of hills, and east of them, lies a very peculiar country known as the "bluff lands"—a level table, twenty

feet above overflow, and evidently much older than the present alluvial bottom. This region is very fertile, easily cultivated, and, lying almost on a dead level, is well calculated to stand the wear and drain of a long cultivation without becoming exhausted. The soil is a fine, orange yellow calcareous-silicious silt, similar in appearance, texture, and the erosive effect of water upon it, to the Walnut Hills around Vicksburg and the other "bluff" regions of the eastern bank of the Mississippi. I am of the opinion that it is part of the "bluff" formation, left as an island by the great river while engaged in washing out its present bottom. The timber left on the uncultivated parts of this bluff region is certainly the finest I ever saw. The forest is dense beyond conception, and not from an undergrowth of brush and shrubbery, but from a crowding together of trees, extremely tall, large and well proportioned. Magnificent poplars, beeches and magnolias, and gigantic oaks of at least twenty different varieties, with several species of gum trees are mingled together in splendid confusion, while the muscadine and other native grape vines that interlace themselves amongst the lofty branches give to the whole scene an appearance of teeming life and luxuriance not often witnessed, even in the South; and in some of the lower and damper spots, a rank undergrowth of cane adds its share to the already bewildering effect of so wondrous an abundance of vegetation.

The bluff lands contain the plantations of some twenty-five well-to-do planters, whose average crops, I understood, were a bale of cotton to the acre, and from thirty to forty bushels of corn. These lands cover about half the surface of the island; the rest of it being low swamp lands liable to overflow, and not susceptible of cultivation. Among the many other pleasing features of the island, may be mentioned the excellence of its roads, which present a grateful contrast to the rough, gullied and unworked roads of the hill country; also the neatness and beauty of the plantations, and the planters' houses, and if Dr. Lovelace may be taken as an example, the intelligence, refinement and hospitality of these planters deserves a special mention.

A particular notice is also due to several isolated features of the western portion of Chatahoula parish, not mentioned in the general description of that section.

In the vicinity of La Croix's ferry, and near the mouth of Trout creek is a small area of about a mile square, peculiarly character-

ized by numerous sulphur springs. The best known of these, are on the eastern bank of Front creek, known as the Chatahoula White Sulphur, and now owned by Mrs. Ward. Her husband first opened these springs to the public in 1846, and for many years they were a fashionable resort for the planters of Rapides and other parishes. Their waters were thought to be beneficial to those afflicted with the liver complaint, dyspepsia and all kinds of cutaneous diseases. Buildings to accommodate between two and three hundred visitors were erected, and still stand on the grounds, but are in a sadly dilapidated state and unserviceable at present. There is no doubt, however, but that a small outlay of money in repairs, and in erecting new buildings, would make this again a very desirable summer resort, especially as the close proximity of Trout creek gives a fine opportunity to those seeking recreation to enjoy the best fishing this or any other State could afford.

Trout creek is most aptly named, being a clear, rapid, bold stream, dashing along over a rocky bottom, making a pleasing alternation of shallows and deep, quiet pools, which are the haunts of the largest, most voracious and abundant shoals of brook trout I ever saw. This stream also affords fine sites for mills. One mile from Ward's Springs, on the opposite side of Trout creek, are the sulphur springs of Captain Welch, which are better, more numerous and stronger than the former, but are not so well known from never having been opened to the public. An enterprising party could easily make either of these places a source of profit, by fitting them up for the reception of visitors.

The bottoms of Little river, Castor bayou and Dugdemona furnish a large amount of splendid timber, both cypress and pine, for the New Orleans market. This timber is felled during the summer and fall, and floated out into Little river during the annual overflow. Beyond this supply of timber, these bottoms are of comparatively little importance, as they are too regularly overflowed to be cultivated.

In the northeast section of township ten north, range five east, is another peculiar feature of Catahoula, namely, the "Chalk Hills;" so called from a capping of soft white stone that covers their summits, which resembles chalk somewhat in appearance, hardness and texture. But there the resemblance ceases, as this stone is entirely free from any trace of lime, and owes its whiteness and softness to

the particular manner in which it was formed. The discussion of this point, however, belongs rather to the geological branch of the survey, and will no doubt receive the attention of Dr. Hopkins.

We were much indebted to Mr. J. E. Harrolson for assistance in this section of the country. He acted as guide for us during the two days we spent in investigating the chalk hills, a stratum of lignite, and several shell banks in his neighborhood. I determined the height of the chalk banks to be respectively 100 feet and 92 above the narrow valley between them. As this valley rapidly descends, and is at that point several miles from the main bottom of the Ouachita, the true height of these hills must be considerably more, say at least 150 feet, which I think will be about the average elevation of the hills of this parish.

Statistics of this parish : White population, 5492; colored, 6159; improved lands, 54,413 acres; horses and mules, 4169; neat cattle, 17,908; swine, 37,910; corn, 344,890 bushels; ginned cotton, 23,564 bales; sweet potatoes, 36,675 bushels.

CALDWELL.

Lying due north of Catahoula is the parish of Caldwell, within which our surveying expedition remained from the twentieth to the twenty-sixth of July. From Harrisonburg we proceeded on a nearly direct line to Columbia, and thence in a northwesterly direction through the parish, crossing its boundary line near the northwest corner—thus making a complete diagonal section. Even before leaving Catahoula parish, a change in the appearance of the country is observed, and on entering that of Caldwell the pine woods character is entirely lost. The country is still hilly, and even of superior elevation to that farther south; but the ridges are broader, the soil more fertile and of better texture, giving evidences of containing lime, while the forest growth is mainly composed of oaks, hickory and occasional wild plum and thorn bushes. And such are the characteristic features of the country all along the dividing ridge between the waters of the Ouachita river and Castor bayou, until you pass ten or twelve miles beyond the town of Columbia. Here the lands again begin to change, the soil becomes thinner, the surface is more broken, and soon the pines assert their superiority over every

other tree, and you recognize that you are once more in a "piney woods region."

What I have above designated the dividing ridge between the Ouachita and Castor bayou, is in fact a series of ridges lying mainly parallel to the Ouachita, rising in elevation as they recede from the river, until they reach their greatest height some five or six miles back from its banks. These ridges become much narrower and steeper as they approach the river, and finally when they abut against the water's edge, as is the case at several points, they become absolutely precipitous.

The western portion of Caldwell is a rough, broken country, cut up by the numerous tributaries of Castor bayou, but of the details I am unable to give any account, not having examined that section in person.

East of the Ouachita the country is mainly the alluvial bottom, subject to overflow, with the exception of a long, low, narrow ridge that runs down between the Ouachita and Beuf rivers, and reaching nearly to the mouth of the latter.

While this parish does not present much of special interest on a general view, yet there are several features of a purely local character well worthy of a detailed description.

The Grandview country as has been already remarked, consists of a series of narrow, sinuous ridges, covered with a rich black loamy soil, which abut against the Ouachita river some eight miles below Columbia. From the magnificent view afforded from these heights of the valley of the Mississippi and its tributaries, the point has taken its very appropriate name. As you stand on the last bald knoll, ere you descend to the water's level, a panorama is spread out before you, such as can be seen nowhere else in this State, and even where lofty mountains carry you higher, so wide an expanse of country is seldom presented at a single view. Towards the northwest the Ouachita hills stretch out into the dim distance, with their cultivated slopes successively losing themselves in the dense woods of the alluvial bottom. Then sweeping around over an arc of three quarters of a circumference, the powers of the eye are exhausted in attempting to measure the immense expanse of the great valley. Innumerable ranks of primeval forest trees rise one above the other until the last blue outline mingles with the clouds of the bending heavens. To the southwest the hills again appear, and roll down in

parallel ridges to the level lands, while here and there, within this visible circle, the Ouachita is seen wending its quiet way along to the great, father of waters. From here the smoke of the steamboats on the Mississippi is frequently seen, and on a clear day the bluffs at Natchez and the adjacent country.

Leaving Grandview and proceeding three miles towards Columbia, we passed a beautiful little prairie, called *Prairie du Cote*, in which is situated the neat little village of Copenhagen. The prairie is almost exactly circular in shape and about one mile in diameter; its soil is a light yellow loam. Its surface gently undulating, covered with a luxuriant growth of grass, and thousands of bright wild flowers, and free from trees, excepting a few clumps of thick growing hawthorns; and being the pasturage of large herds of cattle, and flocks of sheep, it presents a pastoral appearance very pleasing and refreshing to one who has journeyed for days through the barren pine regions. Some five or six neat looking farm houses are situated on the circumference of the prairie, and a flourishing store and post office complete the village of Copenhagen.

The town of Columbia, the site of the parish Court House, is pleasantly situated in a level valley surrounded on all sides by high hills excepting towards the river. It seems to possess all the elements necessary to make it a flourishing and important inland town, although at present it is but a very little larger than its rival Harrisonburg.

Eleven miles north of Columbia, opposite the plantations of Governor Hyams, is a very interesting high bluff, with a perpendicular face on the river, which does not contain a single stone in its structure, and yet stands like a wall of granite. This bluff is at least 125 feet in height, and consists of many thousand horizontal strata of compact sand and lignite, extending from within fifteen feet of its top to the water's edge. This composition, and the perfectly horizontal arrangement of the alternating strata, are the causes of the perfect perpendicularity of the bluff, and also account for its stability. Standing on the highest point of the bluff, is a lone grave, marked by a white monument, that may be seen for miles both up and down the river. From this circumstance it is called the "Lone Grave Bluff," and no doubt has excited the curiosity and sympathy of many a traveler on the waters of the Ouachita.

In our researches in this vicinity we were very fortunate in mak-

ing the acquaintance of J. M. Merriditte, Esq., who took great interest in our survey, and kindly acted as our guide in visiting the points of interest in his neighborhood. To him we would beg leave to tender our sincere thanks for his kindness and hospitality, as well as for the services rendered.

The statistics of Caldwell parish are as follows: White population 2,888; blacks 1,945; improved lands 21,468 acres; ginned cotton 7,296 bales; other items not known.

JACKSON.

Owing to the fact that we were anxious to prosecute our studies continuously up the Ouachita river, we passed through but a small portion of Jackson parish, occupying a part of two days in doing so, namely, the twenty-seventh and twenty-eighth of July. We intended to return to the parish, but were prevented by an unfortunate circumstance hereafter to be mentioned.

The line we traveled was a continuation of our course from Columbia diagonally across Caldwell, until we reached a point on the Columbia and Vernon road, some twelve miles from the latter place; thence we turned to the northeast on a nearly direct line to the city of Monroe. So much of the parish as we saw was a good country, with a rolling surface and fair soil. The farms were flourishing and well cultivated. From Mr. J. D. Williams, living in section eighteen, township fifteen north, range one east, we learned that the topography of the parish, throughout its whole extent, is very similar to that portion through which we traveled, but somewhat more hilly, and higher toward its northern limits. By a section line made in the surveys of the railroad from Monroe to Shreveport, it appears that one point crossed by that line within the limits of Jackson is 250 feet above the level of their reference line, which is the banks of the Ouachita opposite Monroe. According to the report of the Mississippi river, by Captain A. A. Humphreys and Lieutenant Abbott, this point is twelve feet *lower* than the bank of the river opposite Vicksburg, which latter is itself one hundred feet above the Gulf of Mexico. This, then, enables us to calculate exactly the height of our first point above the Gulf, and we find it to be 338 feet. Still further westward on the line of railroad the country continues to rise, until finally a summit is reached near Arcadia, 299 feet above the

reference point, and therefore 387 feet above the Gulf. Some of the trial lines I understood passed over points of even greater elevation, and it is not likely that a line of survey would have been carried over the highest parts of the ridge to be crossed, but rather the contrary. We may, therefore, safely estimate the elevation of summits in this part of the State to be at least 400 feet above the Gulf, and farther north perhaps a hundred feet more. For this information I am indebted to Colonel Maguire and Major Green, of North Louisiana and Texas Railroad, who kindly supplied me with a profile of the survey from Monroe to Shreveport, and gave me freely all the assistance in their power. Colonel Maguire also gave me a copy of the map of the lands lying on either side of the line of railroad, to a depth of two and a half townships, which is more full and detailed in its representations of the topographical features of the country than any other map I have seen. The alluvial bottoms of the tributaries of the Ouachita, as exhibited on the map accompanying this report, are taken from this source.

There is a peculiar belt of land lying in a northeast and southwest direction between Vernon and Vienna, that is well worthy of special mention. The soil of this belt is of an intense, deep red color, and so completely filled with coloring matter as to stain everything it touches like a dye. This soil is very fertile and produces large crops of both corn and cotton. From the description I received of it I am satisfied that it must be very similar to the Pontotoc Ridge of Mississippi, which is also known as the "Red Lands". Professor Hilgard speaks at considerable length, and in a very favorable manner of these lands in his report on the Geology and Agriculture of Mississippi, characterizing them as lands that "wear well," and are easily restored to productiveness, when old, by deep culture, and the use of calcareous, conjointly with vegetable manures. Their color is due to a very large amount of iron present, and intimately mingled with the soil.

The white population of Jackson parish by last census was 5,367; blacks 4,098; improved lands 70,873 acres; horses and mules 2,649; neat cattle 10,631; swine 24,700; ginned cotton 10,687 bales, other items not known.

OUACHITA, RICHLAND AND MADISON PARISHES.

We spent the twenty-ninth, thirtieth and thirty-first days of July in studying the above parishes, which I have included in the same

description, as the two last were not thoroughly examined, and I am not in possession of much information concerning their details.

Ouachita parish is divided by the river of the same name into two distinct sections. That west of the river is mostly a high, hilly country, covered with the long leaf pine. These hills descend to the bottom lands at various distances from the river's banks, in some places leaving a bottom of several miles in width of fine lands and swamps, and at others they bluff against the water's edge. In one of the swamps I noticed, for the first time, a pond filled with tupelo gum trees, and in one of the valleys of the hill country several thickets of the large leafed cucumber tree. Both of these trees are very common in Mississippi and Alabama, but seem to be rare in this State.

Southwest of the city of Monroe, and on the western side of the Ouachita is an extensive cypress brake, called *Chenier au Tondre*, which covers an area of several square miles. Numerous creeks and bayous empty into this brake, and all having themselves swampy bottoms, quite a large area is made useless for agricultural purposes.

But crossing the Ouachita, as fine a country is found as this or any other State can boast of. The land along the river is high, mostly above the highest water; lies beautifully level, and is of great fertility. Such lands make up a large part of the eastern portion of the parish. But the garden spot of Ouachita is "the Island" included between the waters of Bayou de Sieard and the Ouachita river. This is certainly a beautiful region, higher than the surrounding country by several feet, of unsurpassed fertility, well improved and splendidly cultivated, inhabited by an educated, refined and hospitable people—nothing seems wanting to make it a perfect picture of prosperity and plenty. Corn and cotton, more nearly absolutely perfect than grew on this "Island" last summer, I never saw, while all the smaller crops and vegetables flourished with equal vigor.

Captain Phillips, a wealthy planter, living on Bayou de Sieard entertained us with great cordiality, and seemed to be a most polished gentleman, as well as an energetic and scientific farmer.

The city of Monroe, the seat of justice of Ouachita parish, is well situated on high land, above any overflow, is neatly laid out and well built, with many handsome residences and public houses. Its streets are well shaded by numerous handsome oaks, and altogether

it is the most pleasing inland town I have visited in this State. From the advantages of its location and the public spirit and enterprise of its inhabitants, it bids fair to become a place of considerable importance.

Trenton, two miles above Monroe, and on the opposite bank of the river, rivals it in the business energy of its citizens, and struggles, with considerable success, for its share of the trade of North Louisiana.

Through the kindness of the Hon. John Ray, Dr. Hopkins and myself were furnished with a free ticket over the North Louisiana and Texas Railroad, and were thus enabled to visit without expense the country lying along that road between Monroe and Delhi, the latter place being at that time the terminus of the finished portion of the road. This carried us directly across the new parish of Richland, created by Legislative enactment in 1868. The boundaries of this parish I have marked out on the accompanying map in accordance with the terms of the act by which it was created.

This is essentially one of the low land parishes, and yet I found the surface considerably more diversified than I expected. As usual the lands along the water courses are higher than the general level, and make the area, which is susceptible of cultivation; and better lands can nowhere be found. But between Boeuf River and Bayou Maçon there are several alternations of low and higher lands that seem to be entirely independent of the water courses. Even in the great overflowed basin of Boeuf river there are swells or low ridges above the reach of high water, possessing fine soils, and affording space for large plantations. The court house town, Rayville, is situated upon one of these ridges, and "Oak Ridge," north of the railroad is of the same character. Then comes, as we proceed eastward, a belt of low pine woods, still above overflow, but very poor, and almost useless, as a farming region. And still farther eastward, extending to the bayou of the same name, are the Maçon hills, a series of low ridges varying from ten to fifteen feet above the waters of the bayou.

The soil of the Maçon hills resemble somewhat that of the "bluff lands" of Sicily Islands, but is much inferior in quality, and produces an entirely different forest growth, namely post oak, dogwood and small sweet gums, and persimmon trees, but no beech, poplar, or magnolias. From Major Richardson, an engineer and surveyor

in this section of the country, I received the information that this alternation of low ridges and overflowed bottoms continues through the southern part of Richland, and makes up nearly the whole of the parish of Franklin; but the land grows poorer as you go farther south.

East of Bayou Magon lies the parish of Madison, extending to the banks of the Mississippi river. Owing to the high water, which made this parish an impassable flood at the time of our visit, we were unable to examine it in person. It is composed, however, entirely of alluvial lands, and would, no doubt, present but few points beyond the beauty and fertility of the cultivated portions.

The statistics of Ouachita parish, which are given below, include that part of Richland which has been taken from the former :

In Ouachita, whites, 1887; blacks, 2840; improved lands, 25,881 acres; horses and mules, 1518; neat cattle, 6471; swine, 12,142; corn, 158,280 bushels; ginned cotton, 8639 bales; sweet potatoes, 20,883 bushels.

In Madison, whites, 1649; blacks, 12,493; improved lands, 104,383 acres; horses and mules, 5514; neat cattle, 13,541; swine, 14,362; corn, 899,050 bushels; ginned cotton, 40,870 bales; sweet potatoes, 51,288 bushels.

In Franklin (part of which is now Richland), whites, 2758; blacks, 3404; improved lands, 34,138; horses and mules, 2345; neat cattle, 9511; swine, 15,438; corn, 184,907 bushels; ginned cotton, 9307 bales; sweet potatoes, 29,388 bushels.

MOREHOUSE.

Northeast of Ouachita lies the old Bastrop grant, now the parish of Morehouse. For eight miles from Monroe the road to Bastrop passes over a level country, and then rises upon a low broad ridge. The elevation and breadth of this ridge both increase towards the north, until at the town of Bastrop a height of fifty or sixty feet is attained above the level bottom. This high ground is known as the "Bastrop Hills," but is rather a rolling than a hilly country, no part of it being at all comparable in brokenness to the country west of the Ouachita. It varies in width between one and five miles, and descends by gentle slopes and long spurs to the bottom on the west, but terminates in a bluff on the east. Its soil and growth are very variable, some tracts

being poor and covered with short leaf pine, while others are fertile, with a mellow, yellow loamy soil, and good growth of oaks, dog wood, hickory, and black gum trees. In the vicinity of Bastrop the land is well adapted to pasturage, as is evidenced by the fine growth of grass on the fields lying fallow. The cultivation of native and foreign grasses has also been attempted with considerable success. Mr. Schardt has a vineyard just east of Bastrop of several acres in extent, and has already made crops of grapes that yielded 1500 and 2000 gallons of fine wine. He is of the opinion that the culture of the grape could be made an exceedingly profitable business in North Louisiana.

Six miles east of Bastrop is a very beautiful tract of land, known as the Prairie Mer-Rouge, so named from the fact that when first discovered, in the fall, a dense covering of dwarf shumack, then in all the brilliancy of its autumn coloring, gave the whole prairie the appearance of a waving red sea. In going from Bastrop to the prairie, you descry a steep hill four miles from town, and then pass two miles through a densely wooded bottom, covered with cypress and gums; and then you come suddenly upon the open prairie, with no natural growth but the stunted hawthorns, and an occasional row of fine sycamores, that seem to be rather the result of cultivation than indigenous. The greater part of the prairie is under cultivation, and produces very fine crops. The dwellings of the inhabitants are handsome, their grounds well improved, and a general air of culture and prosperity pervades the whole neighborhood. The length of this tract is three miles, and the average depth one mile. To one of the planters, Mr. Browne, we were indebted for much kindness and hospitality.

Southeast of Prairie Mer-Rouge lies another similar region, called Prairie Jefferson, of greater extent, and said to be even superior to the former in fertility and beauty.

There is one feature observed in these prairies, as well as in much of the bottom lands of Ouachita and Morehouse, quite peculiar and striking, namely, a very great number of small isolated mounds, varying from a few yards in diameter and a few feet in length to over one hundred yards across, and from fifty to sixty feet in elevation.

They are thought by the inhabitants to be Indian mounds, and some of them have been excavated, and Indian relics found. But it

is hardly probable that so many tumuli, so irregularly scattered over so large a scope of country can all be the results of human labor, but rather having a natural origin, and then subsequently used in some cases as burying grounds by the aborigines. What their origin is, is rather a geological than a topographical question, and will no doubt be fully discussed by Dr. Hopkins in his report.

In the northern part of Morehouse lies the bayou Bartholomew country, which, like all the bayou lands is fertile and in a fine state of cultivation. Still north of Bartholomew is a continuation of the Bastrop hills, which passes beyond the limits of the State into Arkansas.

At this point in our investigations Dr. Hopkins became dangerously ill, and it became necessary for me to return with him at once to the Seminary, which was done by boat from Monroe.

After a week's rest, then very necessary to myself, I again resumed my labors alone, and visited during the month of August, the city of New Orleans, and the parishes of West Baton Rouge, Livingston, and East Feliciana, besides making a journey to the city of Natchez on business of a geological nature.

While in the city of New Orleans I called upon the Hon. John Lynch, Surveyor General of the State, and take pleasure in acknowledging the kindness and courtesy with which I was received by him. He allowed me to examine the field notes on record in his office, and offered me every possible assistance in the prosecution of my undertaking. If the field notes of the United States surveys are reliable, they seem to contain ample information from which to construct a topographical map of the State. The notes are full, and the memoir connected with them notices the character of the country, whether level or hilly, overflowed, swampy or dry; whether the soil is good or bad, and the natural growth; in fact, all the features that could possibly be put upon a map.

EAST BATON ROUGE.

August 23, 24 and 25 I spent in examining this and a small portion of Livingston parish. The city of Baton Rouge is on one, and the last one, of a series of bluffs which characterizes the eastern bank of the Mississippi river below the city of Memphis. Vicks-

burg and Grand Gulf, Rodney, Natchez and Fort Adams, St. Francisville and Port Hudson, are all located upon similar bluffs, and at all of these points the same general features are found. Some of these localities exhibit the peculiarities of the "bluff formation" more strikingly than others, and at Baton Rouge, perhaps, they are less strongly developed than anywhere else. Still, here we notice the tendency of the earth to stand in perpendicular walls, the deep gullies where once the surface has begun to wash, the crooked, narrow, branching valleys where streams exist, and the impalpable dust of the dry season, and stiff, sticky mud of the wet.

Leaving Baton Rouge and going eastward along the Greenwell's Springs road, the country is, in general, level but somewhat cut up by ravines, and even inclining to be undulating at intervals. The soil is the dark orange yellow silt already described in connection with Sicily Island, and is quite fertile, the natural growth being beeches, magnolias, the different varieties of oak, and occasional gums. And such continue to be the characteristic features for two miles and a half, until the road crosses a small stream called Ward's creek. Here there is a very decided change in surface, soil and forest, the surface becoming almost perfectly level, the soil being black, and the sweet gum largely the predominating tree. In fact, the whole scene reminds one forcibly of the "gum bottoms" of North Louisiana. For four miles in an easterly direction this belt of black land continues, and I was informed by gentlemen living on its borders, that it stretched across the parish from a few miles above the Greenwell's Springs road to Manchac Bayou, following, I suppose, the course of Ward's creek—that is, trending from northwest to southeast.

Passing this belt, the surface resumes its undulating character; the soil is yellow, light and loamy, and the magnolia, beech and poplar trees constitute the principal growth of the forest. And the same features are observed until we reach the narrow bottom of the Comite river, which presents no peculiarities worthy of mention. Between the Comite and the Amite the country bears a strong resemblance to that lying between Ward's Creek and the Comite, being perhaps somewhat more level, and apparently more fertile.

This, which is one section across the parish from the city of Baton Rouge to its eastern boundary, may be considered as almost general for any line that may be drawn from Baton Rouge to the Amite, south of that city. I was persuaded of this after riding in a zig-zag

line, in a north and south direction, to Booth's store, near the mouth of Bayou Manchac, and thence back to my starting point by the "highland road."

The "highland road" takes its name from the fact that it skirts along the bluff that leaves off from the Mississippi river just below Baton Rouge, and terminates near the junction of Manchac bayou and the Amite. Between these bluffs and the Mississippi is an alluvial bottom, subject to overflow.

Along the "highland road" I observed considerable diversity in the nature and color of the soil. It is mostly the yellow bluff land, but occasionally a darker tract is seen; and again the road will cross a spot as white and glaring in the hot sun as a snow bank.

North of Baton Rouge we have the following topographical features: From Port Hudson to the bend north of the city, the "bluff" runs in nearly a straight line, leaving an overflowed bottom between it and the river, which widens towards the south, and finally terminates in a dense jungle called the Devil's Swamp. Eastward of the line above drawn, we see the usual features of the bluff regions, already sufficiently described, with two very peculiar tracts, however, giving some variety to the surface. These are called Buller's Plains, one seven miles from Baton Rouge, on the Bayou Sara road, and the other five miles east of Port Hudson. These plains are level tracts of white land, nearly barren, with an irregular growth of crab apple and hawthorn trees.

In the northeastern corner of the parish the pines are found in a small body lying westward of the Amite river; but they cover so small and unimportant a part of the parish that we may call it, on the whole, a "bluff land parish."

The city of Baton Rouge, being probably the second city in the State, deserves a special description. Situated, as above noticed, on the lowest highland on the banks of the Mississippi, it naturally occupies a position of considerable importance. Its streets are broad and well laid out, and being planted along their entire length with live and water oaks, the city has the pleasant appearance of a large country village, and one would hardly believe that it contained a population of over ten thousand souls. Its public buildings are handsome, and present a fine appearance from the river, especially the ruins of the State House, and the Deaf, Dumb and Blind Asylum.

The latest statistics of the parish of East Baton Rouge are as follows: White population, 6944; black, 9102; improved lands, 55,220 acres; horses and mules, 4276; neat cattle, 5482; swine, 6150; corn,

481,452 bushels; sweet potatoes, 20,356 bushels; ginned cotton, 684 bales (?) sugar, not given. It is said the population has increased largely since the war, especially in and about the city of Baton Rouge.

LIVINGSTON.

East of the Amite river lies the parish of Livingston, of which I examined only a narrow belt lying along the borders of that stream. This was quite a pretty country, being twenty-five or thirty feet above the low bottom of the Amite, with an undulating surface, and good grayish brown or chocolate colored soil, overlying a bed of sandy red clay. The forest growth is quite diversified, consisting of oaks, beeches, dogwoods, gums, short-leaf pines, and scattering magnolias. I was quite surprised to find an extensive tract of this land, at least seven miles in length and a mile or more in width, evidently abandoned lands. The soil is certainly far from being either originally bad or exhaustive, as is shown by the splendid carpet of grass which covers all the old fields, and which feeds a large number of very fine cattle. I understood that these lands had been abandoned on account of their unhealthiness, but no cause was apparent why they should be unusually unhealthy.

The rest of the parish I can only describe as it has been described to me by intelligent citizens, one of whom, Colonel Benton, I would beg leave to thank, both for his information and his hospitality.

Most of the good land of Livingston, lies along the Amite river, diminishing in fertility as the distance from the river increases. The rest of the parish consists mainly of broad level tracts of pine woods, different in some respects from the pine hills, and even poorer if possible. Intersecting these level pine regions, are various streams running north and south, with broad, marshes, dense swamp bottoms, containing such thick breaks of cane, as to be absolutely impassable at many points. These cane breaks serve as a winter pasturage for the cattle of the parish, and enable them to keep in fine condition throughout the year.

A portion of this parish has been recently incorporated in the new parish of Tangipahoa; the boundaries of which will be found traced on the accompanying map in accordance with the terms of the act of creation.

The statistics of the parish previous to this division of its territory were the following : White population, 3120; blacks, 1311; improved lands, 10,537 acres; horses and mules, 935; neat cattle, 8004; swine, 9522; ginned cotton, 1563 bales; sweet potatoes, 27,698 bushels; corn, 69,795 bushels.

These figures show that the parish is of but little importance as an agricultural region, but why it should not become so by the production of turpentine and timber, I can see no sufficient reason. Its proximity to the New Orleans market ought to insure success to any undertaking looking to the development of these resources.

EAST FELICIANA.

Landing at Port Hudson on the twenty-fifth of August, I proceeded at once to examine the country in the immediate vicinity of the town, and found it very similar in every respect to the lands immediately adjacent to the city of Baton Rouge, with all the characteristic features, however, more marked. The Port Hudson bluff I estimated to be about seventy-five feet in height above the mean water level. Though constantly caving, and changing its outline, it, nevertheless, preserves its almost perfect perpendicularity from its crest to the debris at its foot. Back of the bluff the land lies generally very level, but is cut up by deep, ragged, crooked ravines, which make the whole country a perfect labyrinth to a stranger, unless he keep scrupulously upon the beaten roads. The peculiar structure of this region, as well as those heretofore mentioned as similar to it, proves, beyond a doubt, that it was once a level plain, and probably the bottom land of the Mississippi river in some far remote period of time. Since that time an upheaval has taken place, or the mighty river has washed out its present alluvial bottom, or more probable still, both of these operations have gone on together, and thus the former low lands became high, level plateaux. Subsequently, the denuding and erosive effects of rain water have changed the level plains into their present condition. At Port Hudson, we observe one stage of this change in the deep ravines and narrow, sinuous valleys, and the same may be remarked of Baton Rouge and Natchez, and their adjacent lands. At Vicksburg, however, the action of the elements has been carried further, and the strangely

irregular hills of Warren county, Mississippi, have been the result. Ultimately the region around Port Hudson will be reduced to the same condition. In this connection, I will notice some other peculiarities of the material of the "bluff formation," which must have attracted the attention of every engineer of the two armies, which, by their struggles for the possession of them, made several of these bluffs historic ground. The perfect homogeneousness of this material for a great depth, the ease with which it was wrought either into excavations or embankments, and the firmness with which it stood in any condition, rendered it an admirable substance from which to construct earthen fortifications. The deep and capacious magazines and "caves" made, in many cases entirely without supports, also attest the tenacity of this earth in its natural condition. Many a life was saved by these properties, and many an otherwise difficult problem was made easy of solution to the military engineers by them.

From Port Hudson I went to Clinton by the famous railway connecting those places, and made the following observations. The "bluff lands" and the configuration of surface pertaining to them continue for thirteen miles from Port Hudson. Here the short leaf pines first occur, mingled however with a better growth, and the soil itself seems to be a union of the soils of the bluff and pine lands. One mile further the pines become the principal tree, and so continue to Clinton, excepting on the "bottoms" of the streams, one of which, the Comite, has quite an extensive valley of fertile and swamp lands. East of Clinton, the surface becomes still more broken, the pine more abundant, and soil thinner, until after crossing the Amite, we come to the open long leaf pine country, which has already been sufficiently described.

Clinton is quite a handsome town, of some two thousand inhabitants, well laid out around its court house square, evidently a place of considerable business, and the home of many refined and cultivated citizens. The proper completion of its railroad to Port Hudson would be of great advantage to it, and it is to be regretted that the road should be allowed to remain so long in its present condition.

North of the line of railroad, the general topography of the country is similar to that described. The bluff lands make a belt parallel to the Mississippi river, widening slightly towards the north, and becoming eighteen miles wide at the State line, according to Professor Hilgard's geological report of Mississippi. So that we may

consider the above description of East Feliciana as almost equally applicable to its sister parish of West Feliciana, and both of them should be designated "bluff parishes."

Statistics of East Feliciana: Whites, 4,081; blacks, 10,616; improved lands, 96,728 acres; horses and mules, 3,480; neat cattle, 12,779; swine, 14,507; corn, 358,769 bushels; ginned cotton, 23,332 bales; sweet potatoes 97,810 bushels; sugar, not given.

In West Feliciana: Whites, 2,036; blacks, 9,635; improved lands, 71,539 acres; horses and mules, 3,792; neat cattle, 9,370; swine, 7,930; corn, 274,930 bushels; ginned cotton, 21,331 bales; sweet potatoes, 50,546 bushels; sugar, not given.

The following memoranda of the topographical features of the country traversed by him alone have been furnished me by Doctor Hopkins, and I beg leave to incorporate them in my report. The Doctor rode from Alexandria to Chicotville, thence to Lake Charles on the Calcasieu river, thence northwest to Natchitoches on the Red river, and crossing that stream returned to Alexandria through Winn and Grant parishes. From Alexandria to the crossing of Bayou Cocodrie is an unbroken surface of Red river alluvial land, which has already been described in connection with the parish of Rapides. From Bayou Cocodrie to Chicotville a pine woods hilly region extends for ten miles, gradually becoming less broken, until finally the hills sink into the prairie two miles from Chicot. The northern half of this prairie is gently rolling and dotted with "islands" of pines; whence the name of "Pine Prairie." South of Pine Prairie and separated from it by a small belt of wood land lies the extensive prairie of "Marmon," which extends a long distance southwardly between Bayou Canne and the Nezpique river. Still further south and west, is the Calcasieu prairie, and along the Mermentau river the prairie of the same name. These prairies are more nearly perfect levels than the pine prairie, and gradually pass off into the salt marsh which borders the whole southern coast of the State. North and west of this prairie region is the great pine region of the State, extending westward to the Sabine and northward to the Red river, and gradually increasing in elevation and unevenness as you proceed north. This extensive area, is diversified however by the valleys of numerous streams, some of which contain good land, and by patches of black prairie, of which Anacoco is the principal.

Natchitoches parish is composed mostly of the hill lands which strike the river at the town of the same name; it has however a belt of alluvial lands lying on the west of Old river and between that stream, and the Rigolet du Bon Dieu. This island has been injured by late overflows, that have left a stratum of sand over much of the fertile lands.

Winn parish is almost entirely a region of pine hills, and the same may be remarked of Grant, with the exception of the bottom lands lying between Bayou Rigolet and Red river, which extend along the southwestern boundary of the parish some thirty or more miles.

Summing up, now, the results of our observations thus far, we may divide the parishes of the State into four grand divisions, with reference to topographical features.

First and the largest, is the division I will call the "Hill Parishes;" second, the "Alluvial Parishes" which are the chief source of the wealth of the State; third the "Bluff Parishes" on the east bank of the Mississippi river from the State line to East Baton Rouge; and fourth, the "Pine Flat Parishes," lying in the eastern part of the State. Those parishes lying along the coast, and containing large tracts of salt marsh, might be placed in a separate subdivision, but I have included them amongst the "Alluvial Parishes."

And now it behooves me to say that no one is better aware than myself that the foregoing is but a very general sketch of even that small portion of the State which it attempts to describe. While in the main I trust my descriptions will be found correct, as they are the results of my own observation, and information obtained from intelligent and reliable citizens; yet, I have no doubt, many features of local interest and importance to certain neighborhoods will be omitted. And if this report should be read throughout the parishes I have noticed, many persons will find it incomplete and unsatisfactory. To all such I would beg leave to state that during the two intensely hot months of July and August, I rode and drove over a distance of five hundred miles; through these parishes, besides traveling as far again by river and rail; and yet, of course, I saw only the narrow tracts lying along my path. I could, no doubt, have traveled the same distance, and spent the same time in a single parish, without exhausting every detail of its surface formation. And as my time was exceedingly limited, and the task before me of great magnitude, the question was one of doing the most in a given time, rather than of attaining the greatest possible accuracy.

I also beg leave to say that the accomplishment of a rigid topographical survey of this State is an absolute impossibility to any one man, even if his life were devoted to it especially. And yet I believe the *spirit* of the act of the Legislature requiring this survey of me, can be carried out in a reasonable time, with some additional facilities, and more time at my disposal than I have been able to devote to this work this year. And the following is the outline of a plan I would respectfully propose, as in my judgment likely to promise success.

In the first place, I doubt the propriety of attempting to combine the geological and topographical branches of the survey. The first requires careful research, collection of minerals and specimens of all kinds, and would, in consequence, necessitate an extensive outfit, and make a slow progress and lengthy stoppages in certain sections of the country necessary, and yet will require scarcely a visit at all to others. On the other hand, a topographical examination of a country, being one purely of its surface, demands the greatest possible freedom of motion, that the greatest possible space may be traversed in a given time; and requires the study of vast areas that the geologist would find but barren ground.

With, then, a very light vehicle or a good riding horse, a pocket compass, staff-line, small spirit level, note and sketch books, I should consider myself amply equipped for my part of the survey. I should then be allowed to select the most favorable seasons for visiting the different districts of the State. While the summer months are suitable for the examination of the hill country, they are not at all adapted to the investigation of the alluvial lands; these just recovering from the spring overflow, and either impassable or unhealthy to an unacclimated person.

Other special cases, calling for special seasons and means, will no doubt be discovered, and I should be allowed to take advantage of every possible opportunity of meeting such cases.

I would then propose to continue the present general investigation of the State, until every township has been visited and studied with sufficient care to secure by personal observation a knowledge of its physical features. This information would be embodied in a manner similar to the present, but more enlarged, more full and more in detail. Then I would go directly to the Surveyor General's office, and from the field notes of the United States land surveys I

would make as correct a map as those notes will allow. And I believe from the examination I made of those notes last summer, that properly plotted and interpreted they will give a more accurate and useful map than any yet published. In addition, of course all the results of my own observations would be represented on this map, and I am sure that in a few years a map of the State could be compiled of vast use, and interest to all its citizens.

Accompanying this report will be found a skeleton map of the State of Louisiana, traced from a map of the alluvial lands of the Mississippi and its tributaries, found in the report of Captain A. A. Humphreys and Lieutenant Abbott. On this I have indicated some additional features that came under my own observation, but the scale is too small to do more than show the general characteristics of the surface upon it. I have also laid out the boundaries of the parish, the old ones from La Touretti's map, and the new ones from the several acts of the Legislature by which they were created. Of these latter I would beg leave to call attention to the fact that there seems to be an irreconcilable incongruity in the terms of the act defining the boundary of Grant parish. The southern boundary is described as a line running due east from the mouth of the Daro to the point where Little river runs into Catahoula lake. Now these two points are not on an east and west line, as may be seen by the inspection of any map of the State. As two points, however, determine the position of a straight line, independent of its direction, I have drawn the boundary connecting the two points named.

(Map omitted in this publication.)

In regard to the boundary of the parish of Iberia, I am not at all certain that I have it even approximately correct, as the wording of the act of creation is extremely difficult to interpret, unless I were perfectly acquainted with all the details of the plantations, farms and other features through which the line is run. This boundary, depending in so many instances for its exact location upon the confines of private property, is very liable to become lost or changed, unless permanently marked at important points, and actually staked out in many places.

Herewith you will please find an account of the expenses of last summer's expedition, a statement of outfit, and a list of property unavoidably lost or destroyed.

Respectfully submitted.

SAMUEL H. LOCKETT,

Professor of Engineering Louisiana State Seminary.

Respectfully forwarded to the honorable Board of Supervisors.

D. F. BOYD, Superintendent.

F
FIRST ANNUAL REPORT
OF THE
LOUISIANA STATE GEOLOGICAL SURVEY,
1869.

BY F. V. HOPKINS, M. D.,

Professor of Geology in the Louisiana Military Academy.

LOUISIANA STATE SEMINARY, December 31, 1869.

To the Honorable Board of Supervisors :

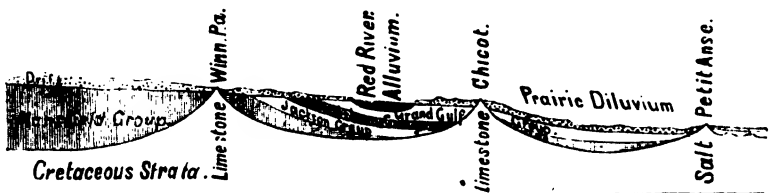
SIRs—In accordance with act No. 72, of the Legislature of 1869, I have made three journeys, occupying the prescribed four months, and now present the following report upon the results.

Trip No. 1 was undertaken alone, on horseback, and the part of the State visited comprised portions of Rapides, St. Landry, Calcasien, De Soto, Natchitoches, Winn, and Grant parishes. On the second, Colonel S. H. Lockett, my colleague of the Topographical Department, accompanied me, and we visited Catahoula, Tensas, Jackson, Caldwell, Washita and Morehouse. On the third I examined parts of Caddo and Bossier parishes as far as the Texas and Arkansas lines, and the sections on Red River, as low as Montgomery in Winn parish. These journeys were necessarily hasty in their character, and were but reconnoissances preparatory to a more accurate survey, and the conclusions arrived at are more general than detailed. A State whose area amounts to more than 46,000 square miles, is not to be thoroughly surveyed in four months. But the more salient features of its geology can be seized in that time, and these are all that I profess to lay before you as yet.

The only formations that appear in Louisiana are the cretaceous, tertiary and post-tertiary. The former appears in a very few iso-

lated outcrops in St. Landry and Winn, and has been pierced in boring artesian wells. The tertiary forms the basis of the upland region of the State, and is the most interesting of the three in a geological point of view, from the abundance of its fossils. But the post-tertiary, forming, almost everywhere, the surface, is of the greatest practical importance to the agriculturist.

The cretaceous strata are too poorly represented to require subdivision. The tertiary, on the other hand, present the same groups that have been named in Mississippi the Jackson, Vicksburg, and Grand Gulf groups. Beside these there is a large mass of lignitic strata, which has been called the Mansfield group, by Prof. E. W. Hilgard, after Mansfield in De Soto parish, and is probably parallel to the Northern lignitic of Mississippi. The post-tertiary also has the same natural divisions as in Mississippi, viz: The Drift or Orange Sand, the Bluff, the Yellow loam and the Alluvial formations. It is much better to retain these terms, which are already in general use, than to devise others from localities in our own State. The general arrangement of the most important of these formations may be seen by examining the following ideal section; drawn on a line passing north through the cretaceous outcrop in Winn, and then turning a little toward the southeast to intersect the St. Landry limestone, and the Islands in the sea marshes.



The cretaceous strata underlie the whole State, probably; rising nearer to the surface than elsewhere, along the line of the above section. The Mansfield group is the next in age; extends from Arkansas to south of the Winn limestone, and dips under the Jackson-Montgomery in Grant parish is near the centre of the outcrop of the Jackson strata, which are overlaid to the south, by the Vicksburg. The latter are supposed to reach the Gulf, at least in Calcasieu, and are overlaid by the Grand Gulf series. The Drift overlies them all, as far as the edge of the prairie region, where it dips

beneath a diluvial formation, partly parallel to the bluff in age. This passes into the sea marsh, in which arise the islands, one of which, *Petit Anse*, is so remarkable for its salt. The section indicates the idea, hardly proved as yet, that these islands rest on a cretaceous base; Red River has cut through the drift, and deposited alluvion, in the basin so formed.

As is customary, I will proceed to notice each of these formations in the order of its age, excepting the yellow loam, alluvion and prairie diluvium; which I have not yet had time to examine.

CRETACEOUS FORMATION.

The cretaceous formation rises to the surface at but few points in the State. One is upon *Dugdemona Bayou*, in T. 12 N.; R. 3 W.; sec. 35. The rock has been described to me as a grey limestone, containing a fissure or cavern of great depth. Professor Hilgard mentions others on lower *Saline Bayou*.* I have not yet visited these places. But in *St. Landry*, about seven miles west of *Chicot*, there is a similar outcrop that I examined last spring. It is also a grey limestone of good quality for burning into lime, and of sufficient hardness to be used as a building stone. It occurs in a hill of drift, on the territory of the *Grand Gulf strata*. The drift clay has to be removed in order to expose the stone, which has been quarried to some extent, during the war, for lime. The stone is of the variety known as *anthraconite*, from its giving a foetid odor when struck. Parts of it are studded with minute crystals of iron pyrites, while others contain natural fissures, whose sides glitter with *Calc. Spar*. This quarry will prove a valuable property, on the opening of railroads in the vicinity. At present the expense of transportation is too great to allow of successful competition with the West, in supplying our State with lime and building stone.

Besides appearing in these outcrops, the cretaceous strata have been penetrated in boring artesian wells, in at least three regions, viz: around *Drake's salt works*, on *Bayou Saline*; *King's*, on *Castor*, and the *Sulphur well* in *Calcasieu*. The stratum first struck at the latter point is a bluish limestone, *anthraconitic*, and fissured like that near *Chicot*.

* Hilgard's Preliminary Report of Geological Reconnoissance of Louisiana, page 11.

The following is the section of the well, given me by Mr. Munn, the obliging superintendent of the works:

Prairie Diluvium.	{ 1. 160 feet blue clay, layers of sand.
Drift.	{ 2. 173 feet sand.
Grand Gulf.	{ 3. 10 feet clay rock, "soapstone."
Vicksburg.	{ 4. 40 feet blue anthraconitic limestone, fissured.
	{ 5. 60 feet grey limestone.
	{ 6. 100 feet pure crystalline sulphur.
Cretaceous.	{ 7. 137 feet gypsum, with sulphur.
	{ 8. 10 feet sulphur.
	{ 9. 540 feet gypsum, greyish blue.

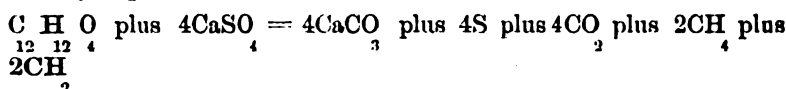
The first four strata were all more or less oil bearing. Several streams of water were struck, one below No. 4 and the other below No. 5. The latter was a strong solution of sulphide of hydrogen, and was flowing during my visit, killing all the vegetation that its water reached. Stratum No. 4 is the one that seems to me to be identical with that of Chicot. Dr. Hilgard classes it as Vicksburg, on comparison with the bluff at Sabine Town, which I have not seen. The point will be difficult to decide, in the absence of fossils, and is one of no great importance. Counting it as cretaceous, however, we have here a thickness of 887 feet of strata, and the limit of the formation not yet reached. When, therefore, we recall the fact that in every direction excepting toward the gulf, cretaceous strata crop out from under the tertiary,* the assumption that the whole State is based upon them does not appear unreasonable.

The sulphur is of unequalled thickness and purity, and the gypsum is also of unusual quantity. Above them we have the remarkable fact of newer tertiary and post-tertiary strata, full of petroleum. Southern California and Trinidad† furnish examples of oil from the tertiary series, but here the drift and diluvium seem equally full. Nor are these the only strange features of this unique locality. The wells are bored in a marsh, often three feet under water. Now, this marsh is dotted in every direction with mounds, generally circular, and of from thirty to fifty feet in diameter and from three to five feet in height. Their appearance is singular, and is rendered yet more effective by the fact that while nothing but marsh grass can grow between them, they are covered with luxuriant clumps of

* See Marcon's Geological Map of the United States and Canada.

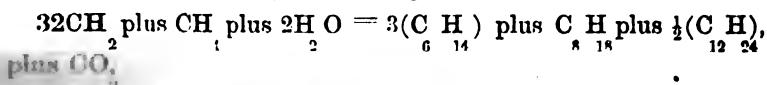
† Dana. Min. Ed. 1869, p. 725.

timber trees, whose grouping could not be excelled by the best landscape gardener. These mounds are not peculiar to this marsh, but are widely scattered over our prairies, and the lower parts of the drift; and have been noticed by Hon. J. B. Robertson; * but they are larger and more numerous here than elsewhere. In structure they are always more sandy and porous than the surrounding soil. These phenomena admit of explanation upon theories already accepted by scientific men. Dufrenoy, † states that sulphur is commonly associated with gypsum, rock salt, and bituminous strata; and that in fact it is formed from the gypsum by deoxidation by organic matter. Whether the organic matter is of vegetable or animal origin is a debatable question. Either source would supply carbon and hydrogen, to remove the oxygen from the gypsum on the one hand, and to furnish petroleum and marsh gas on the other. In this instance the large amount of sulphur produced, points to the vegetable kingdom as the probable source; for the accumulation of animal matter sufficient for the purpose at this one spot, would have been an unexampled occurrence. The reaction between lignite and gypsum is very complicated in nature, but may be thus approximately expressed :



Or, one equivalent of lignite, and one of gypsum, give four each of limestone, sulphur, and carbonic acid, with two each of marsh gas and olefiant gas.

Now, marsh gas and carbonic acid gas often issue from earth containing decomposing vegetable matter alone, but olefiant gas seldom or never. By a further reaction with marsh gas and water, the olefiant gas becomes equivalent to petroleum, thus :



Or, thirty-two equivalents of Olefiant gas, and one of marsh gas with two of water, contain the elements of one of petroleum and one of carbonic acid gas.

* and Explorations, p. 16.

‡ vol. ii, Art Sulfure. Ed. 1859, Paris, p. 180.

We have examples at the mouth of the river of the force exerted by the gases arising from the decay of buried drift wood. I refer to the formation of the "mud lumps" at or near the passes. These are described by Thomassy, * as heaped up by the continual flow of water and inflammable gas, i. e. marsh gas, bubbling up from a great depth and bringing with them the lead colored clay of which they are formed. When the Delta shall have made out past these mud lumps, and the decay of the vegetable matter shall have been complete, the appearance presented will closely resemble that now seen in our "pimpled" prairies and especially the marsh above the sulphur bed. The "mud lumps" will no longer have each its formative stream of gas and water, but will be mounds in a level alluvial formation. The varied phenomena of the region thus aid in explaining each other. The sulphur was formed by reducing the gypsum with vegetable matter. The carbonic acid, olefant gas and marsh gas produced by the process, have each left the appropriate proof of its presence, i. e., the limestone stratum No. 5, contains the former, the petroleum is made of the olefant gas, and the mounds were the vent-holes for the latter. †

No rock salt has yet been found in connection with the gypsum at the sulphur well, and no gypsum in connection with the rock salt at Petit Anse; yet so generally are these substances associated that I regard as very reasonable the suggestion of Prof. Hilgard, that the salt of that island may be based upon an extension of the Calcasieu gypsum bed, and be of cretaceous age. I have, therefore, indicated this in both the map and general section, although it cannot be looked upon as proved as yet. Concerning several other outcrops in Bienville parish, reported by Judge Robertson, I have nothing to say until I may make time to visit them. I have received a cretaceous fossil from Claiborne parish, though of its precise locality I am ignorant. Altogether, the facts observed support the statement already made, that the cretaceous strata lie nearer the surface along the line chosen for the general section, than elsewhere. This idea is still further corroborated by the contour of the outcrop of this formation in Arkansas, for it makes a decided advance southward, to-

* *Geologie pratique de la Louisiane* p. 47-61.

† I am indebted to Dr. W. H. Kirkman, of Lake Charles, for the idea that the mounds were formed by gas springs.

wards Claiborne parish. (Vide Marcou's map.) I am not aware that any deposits of sulphur have been found in the northern part of the state, but the association of salt and gypsum is abundantly exemplified.

The area occupied by this formation upon the map, is small indeed. But strata that can supply gypsum, lime and building stone enough for the State, and salt and sulphur for the whole country, form no contemptible part of our national resources.

The oldest member of the tertiary strata yet observed in this State is the Mansfield group of lignitic strata. It is probably equivalent to the northern lignitic of Mississippi, but as it contains no fossils of its own, excepting silicified wood and impressions of leaves, the determination of its precise relative position must rest on stratigraphic grounds. More evidence upon the subject is required to place our conclusions beyond cavil, but such as they are I proceed to lay before you the data already gathered.

THE MANSFIELD GROUP.

It will be seen by the map, that this group occupies the north-west corner of the State, as far as the Vicksburg and Jackson outcrops on the south, and the Ouachita on the east. It is composed principally of sand—sometimes indurated and micaceous, and sometimes soft and fine, alternating with a much smaller amount of clay. Beds of lignite, limestone and iron ore occur, but these are quite a subordinate feature compared with the sand. Sometimes these materials are massive, at others, they alternate in layers as fine as sheets of paper. Generally, however, they are from one-quarter of an inch to three inches in thickness. One mile back of Columbia, the hill shows the following section, which illustrates their peculiarities:

1. 2 feet Yellow loam.
2. 3 feet Whitish sandy clay.
3. $\frac{1}{4}$ foot Shaly silicious Iron rock.
4. 1 foot Sand, clay colored.
5. 2 feet Whitish sandy clay.
6. $\frac{1}{2}$ foot Irregular Ferruginous sand.
7. 3 feet Sand, clay colored.
8. $1\frac{1}{2}$ feet Concretionary Iron rock.
9. 2 feet Sand, clay colored.

10. 1 foot Stiff white clay.
11. 1 foot Sand.
12. $\frac{1}{4}$ foot Shaly Iron rock
13. 2 feet Sand, layered with white clay.
14. $\frac{1}{2}$ inch Iron rock, strike N. 70° E. Dip $S. 9\frac{1}{2}^{\circ}$ W.
15. 10 feet Hard layered sand.
16. 8 feet White and brown Shale.
17. 3 feet Sand.
18. 14 feet Ferruginous Sand layered with white clay.
19. 6 feet Purplish Clay, ferruginous layers.
20. 15 feet Sand, yellow layers in lower part.
21. 15 feet Sandy white clay, impressions of leaves.
22. 5 feet Sandy white clay, no impressions.
23. 5 feet Clayey sand.

Making a total of one hundred and a quarter feet. Section interrupted by surface soil. To the left, however, in the valley formed by a creek, I found the following continuation.

1. 23 feet Clayey sand, like last in road.
2. 24 feet Sand, layered with clay, then pure and hard, and finally layered with lignite.
3. 1 foot Lignite, a log was found, showing structure very prettily.
4. 2 feet Blue clay shale, full of beautiful impressions of leaves.

The leaves are principally of species of water oak. A Magnolia, and a cinnamomum resembling the sassafras also occur. This section shows another very prominent characteristic of the Mansfield group, viz: the presence of concretionary iron ore. This is sufficiently abundant in some localities to prove of industrial importance. Just above Columbia, on the west bank of the Ouachita is a bluff, showing the following section:

1. 16 feet Indurated sand.
2. 16 feet Sand with brown layers, clayey and lignitic.
3. 14 feet Sand.
4. 22 feet Layers of sand and brown clayey sand. Strike N. 40° E., dip S. 3° E.
5. 10 feet Talus of bluff, to water.

This excess of sand, especially of the laminated variety, is further illustrated by the bluffs above Columbia. Take for instance Hyam's or the Lone Grave bluff, fifteen miles above Columbia.

1. 15 feet Red clay, drift period.
2. 10 feet Hard white sand.
3. 100 feet Laminated lignitic sand, to water.

Or the next bluff below.

1. 65 feet Laminated lignitic sand, aluminiferous.
2. 12 feet White sand, with yellow ferruginous sand.
3. 1 foot Lignitic laminated sand.

The parishes on the east bank of the Ouachita are mostly of more recent formations, but the hills on which Bastrop is built consist of the drift strata very much denuded, resting upon the Mansfield series, as is seen from the following section, taken on the road to Prairie Mer Rouge, eight miles east of Bastrop.

1. 3 feet Yellow loam.
2. 6 feet White buckshot clay. } Drift.
3. 4 feet Reddish sand. }
4. 8 feet Layers of purplish red clay and micaceous sand, salt-bearing.
5. 3 feet Layers of yellow streaked white clay and sand.
6. 1 foot Purplish red smooth clay.
7. 1 foot Yellowish clay, nodules, (ferruginous.)
8. 5 feet Reddish clayey sand, indurated.
9. 1 foot White sandy clay.
10. 8 feet White and reddish sand, irregularly layered.
11. 3 feet Red sand, indurated.
12. 1 foot White and yellow coarse, sandy clay, with ferruginous nodules.

Here there is more clay than in the last section, but not more than at Columbia, and the alum is replaced by salt, as is common in the central regions belonging to this group. East of this point the country is much lower, and of the yellow loam, bluff and alluvial divisions of the post tertiary, which also prevail upon the north, as I am informed, so that it is not upon the east, but the west side of the Ouachita that the Mansfield group reaches Arkansas.

So much for the eastern border of this formation. Nearer the centre, in the basin of Bayou Castor, it does not rise so high, and is frequently saline.

Castor is broadly skirted with bottom lands, subject to overflow, and with second bottom lands, much more fertile than the generality of soils on this formation. Below the mouth of Chickasaw Creek

are two bluffs, called the Coal Bluffs, the lower of which gives this section:

1. 10 feet Yellow clay.
2. 15 feet Blue red-streaked joint clay.
3. 6 feet Sand, with large ferruginous nodules.
4. 4 feet Clay and sand, with ferruginous nodules.
5. 3 feet Brown clay shale.
6. 7 feet Layers ferruginous sand and clay.
7. Lignite reported visible at low water.

We have here evidently only the lower members of the group, but they retain their characteristics. In proceeding from Columbia, towards Vernon, the road descends from the high hills and bluffs that skirt the Ouachita, until in the neighborhood of Low Creek it passes over the second bottom lands. Wells sunk in these lands often strike salt water, and salt was made near here during the war. Leaving Castor bottom by the old Natchitoches road, towards Monroe, the hills become higher and higher, the clays and sands of the drift that caps them becoming of a different red. This region, which is about to be penetrated by the Shreveport, Monroe and Vicksburg Railroad, is the roughest I have yet seen in the State.

Leaving now the Ouachita region for that of Red River, we still find similar features. Take, for instance, the section at Grand Ecore. We have,

1. 25 feet Red, yellow and streaked clays; drift.
2. 22 feet Layers of sand and colored clays.
3. 1 foot Violet clay.
4. $1\frac{1}{2}$ feet Lignite.
5. 18 feet Layers sand and clay, with concretions of iron ore.
6. $1\frac{1}{2}$ feet Shale, obscure impressions of leaves.
7. 2 feet lignite.
8. $2\frac{1}{2}$ feet Blue clay.
9. $\frac{1}{2}$ foot Lignite.
10. 5 feet Grey sand, layered with lignite.

There are no important sections of lignitic strata on the river, above this point, until we approach Shreveport. At Coushatta laminated clay and sand, overlying massive indurated sand is to be seen, and these strata occasionally crop out, beneath the alluvion for miles above. At Shreveport, the bluff above the Packery is chiefly remarkable for a ledge of limestone.

In the town itself, the upper stratum of clayey sand has been extensively removed in grading the streets, and is layered as usual for about fifteen feet. The lower stratum, however, consists of about thirty feet of reddish clay, as seen on the river front, just below the railroad. Above the town, lignite of poor quality crops out on Cross Bayou. The railroad cut passes through five hills before emerging on an almost level plateau, that extends to within a mile and a half of the Texas line, where two other hills occur that afford sections. The strata shown in these cuts undulate pretty sharply, and disappear, and return several times in the mile and a half occupied in the first five hills. By combining the five sections, I arrive at the following succession, not visible together, however, at any one place:

1. Five feet, drift, yellow or reddish clays and sands.
9. Two and a half feet whitish clay.
3. One-quarter foot brown hematite.
4. Five feet banded clayey sand.
6. Six feet clay, white or yellow, with impressions of oak leaves.
7. One foot black, clayey lignitic band.
8. Six feet whitish blue clay.
9. Six feet yellow banded blue clay.
10. Twenty feet sand, with ferruginous bands.
11. Three feet impure limestone.
12. Ten feet indurated sand.
13. Ten feet laminated whitish blue clay.
14. Ten feet crumbly blue clay, yellow streaked.
15. Four feet shaly blue clay, to water.

The upheaval of these strata was anterior to the drift, for in some cases the beds have a synclinal axis, in the centre of the hills, whose outline is now filled out by the drift deposits. In others, however, the present hills are but enlargements of a lignitic nucleus. In these instances, the drift deposits are piled most heavily against the North-east side, the current that brought them having come from that direction. The former is well illustrated in the fifth hill, a mile and a quarter back from the river; the latter in the first hill.

Going west from Shreveport the country is high and slightly rolling, everywhere covered thinly with the drift. The soils are poor, raising but one third of a bale of cotton to the acre. The hills on the Shreveport railroad, already mentioned, give the following sections. The one nearest Greenwood:

First.—Four feet, Drift clay.

Second.—Eight feet, Sand, closely laminated with chocolate colored clay.

Third.—Ten feet, Sand closely laminated with dark blue clay, with fragments of lignite.

The next, within one mile of the Texas line, shows---

First.—Four feet, Red clay, drift.

Second.—Ten feet, Bands chocolate colored clay, shale and ferruginous sand.

Third.—Six feet, Layers of blue clay, red and grey sand and concretionary iron ore.

Fourth.—One and one half feet, Dark grey, clayey sand.

Fifth.—Nine feet, Layers clay and sand.

Sixth.—One-half foot, Black lignitic shale.

Seventh.—Five feet, Grey sand.

The lamination here is as striking as that at Grand Ecore, owing to the decided changes in color. Lignite has been found in a branch near by, but of poor quality. The Shreveport stratum of impure limestone has also been struck in boring a well on Colonel Waskom's place, just beyond the line. Excellent lignite has been sent me from four miles north of Keachi, where the stratum is reported to be six feet thick.

In traveling by boat from Shreveport to Jefferson, the same general features are seen wherever the land is high enough to show anything of the structure of the country. A mile or so below Albany, on Soda lake, a bluff appears, wholly of sand, disposed in the usual layers. At Albany this section occurs:

- | | |
|---|-------------|
| 1. Five feet sand, red clay. | } Drift. |
| 2. Ten feet red sand. | |
| 3. Twenty feet sand, irregularly iron stained. | |
| 4. Twenty feet sand, with large iron concretions. | } Lignitic. |
| 5. Blue clay to water. | |

This shows the drift in force, as it is a northern exposure. On the north side of Soda lake, the bluffs are of similar character. At Irwin's bluff, opposite the mouth of Sewell's canal, nothing but strata three and four of the above series are visible. At Miller's bluff, on the east side of Red river, in Bossier parish, within several miles of the line, stratum four still prevails, with abundant concretionary ore. At Springbank in Arkansas, eight miles beyond the line, is the best exposure in this region, and is as follows:

- First—Twenty feet sand.
- Second—Ten feet laminated sandy iron ore.
- Third—Six feet grey alum bearing sand.
- Fourth—Twenty feet indurated sand.
- Fifth—One and a half foot lignite, good quality.
- Sixth—Ten feet banded sand, grey and brown.
- Seventh—Three feet grey sand.
- Eighth—Half foot black lignitic sand.
- Ninth—Ten feet grey sand.

This only differs from the other section in the larger amount of iron ore, which here would almost justify the establishment of a furnace. An analogous change takes place in Texas, where, twenty-three miles back of Jefferson a furnace was successfully run during the war, and another is about to be built within five miles of the town. The lignitic strata are the source of the ore, although the drift current has disturbed much of it, and scattered it broadcast over the country. Nor is iron the only metal reported to be found in these strata; but as I have not yet analyzed the so-called ores that I have collected, I have nothing reliable to offer on that subject. The northwest corner of the State is covered with pine hills, topped with the red clays and sands of this drift, and exposing nothing richer than the ferruginous sands of the lignitic on their sides. Excepting the bottom lands, therefore, there is little fertile soil, and the population is poor and sparse. The Red River Valley and Caddo prairie used to offer a noble exception; but the damming up of the river by the rafts has subjected these lands, once the finest in the State, to such deep overflows, that they, too, are abandoned. Bossier parish resembles the northwest corner, in the region about Collinsburg; but near Plainfield there occurs some very excellent "red land." This peculiar soil is the product of surface action on the lignitic strata, in those places where the latter are not varied in their contents. Though deep red from excess of iron, by no means a fertilizing ingredient, it contains enough of other substances to make it very rich. Between bayous Bodcau and Dorchite sandy soils again prevail. About Rocky Mount the iron rock crops out in sufficient quantities to have suggested the name, and is well worthy the attention of the iron master. Sandy and clayey post oak flats abound in the middle portions of the parish, and are occasionally varied by patches of prairie. Carolina and Hurricane Bluffs afford sections that show that the drift is deeply deposited over the lignitic in much of the upland region. The latter strata are struck in wells, howev-

er, and often spoil the water. The southern half of Bossier is formed of alluvion, and is unsurpassed in the raising of cotton.

Specimen sections from all parts of the Mansfield group that I have yet visited, have now been laid before you. Their great similarity certainly proves that this great group is but one formation, from Texas to the Ouachita, and from Grand Ecore and Columbia to the Arkansas. On the map, I have carried out the western part of its southern boundary to the Sabine, in the general direction of the trend of the strata; but as I have not yet surveyed this portion, I do not claim for it anything like accuracy. I have made it border here upon the Vicksburg territory on the authority of Prof. Hilgard, who passed over their intersection without finding representatives of the Jackson beds. These latter are next to be considered.

THE JACKSON GROUP.

Commencing at Grandview on the Ouachita, about eighty miles below Columbia, the territory of this group occupies a narrow belt, running in a W. S. W. direction to the Red river. Its northern boundary reaches that river near the mouth of Saline Bayou, and the southern at some distance above Bayou Nantaches. From six to eight miles wide at its eastern extremity, it gradually increases to about twelve at Red River. Here, however, its beds dip toward the southwest in such a manner as to be overlaid by the Vicksburg beds to the west of that stream.

The only good sections of these strata are found at the extremities of their outcrop, i. e., at Grandview and Montgomery. At Grandview there is a high hill, near the top of which were found the bones of the *Zeuglodon macrospondylus*, a large whale-like fossil, characteristic of the Jackson period. The section of the hill is as follows:

1. Seven feet reddish loam, with *Cardita planicosta*.
2. Eighty-five feet whitish crumbly clay, with selenite and impressions of shells; *Zeuglodon* near top. The outcrop being very short in proportion to its thickness, the dip could not be observed.

At Montgomery we have in some respects the most interesting section in this State; showing not only the *Zeuglodon*, but a large number of species of marine shells, corals, fish, etc., and also the lignite of the Mansfield group, underlying the Jackson. We have

1. Five to twenty feet drift; red clay on sand with pebbles.
2. Twelve feet blue clay shales.

3. Three feet two layers light colored clay; impressions of shells.
4. Ten feet of blue clay shales.
5. Three feet two layers like No. 3.
6. Six feet blue clay.
7. Half foot, one layer like No. 3.
8. Ten feet blue clay.
9. Five feet yellowish brown clay; nodules of carb. lime.
10. Five feet blue shell marl; fossils abundant; Zeuglodon.
11. Three feet brownish grey clay.
12. Ten feet clay, black when wet to water; lignite reported visible at low water.

Strata eleven and twelve have a decidedly lignitic aspect, and coupled with the assurances of several gentlemen who live near the place, that lignite is seen at the foot of the bluff at low water, they convince me that we have here the two formations, Jackson and Mansfield, in their proper order; thus proving the Mansfield group to be the older of the two. The strata have a dip of about 10° S. 19° W., so that they probably occupy a lower level on the southwestern bank of Red river, if they cross that stream. Our thanks are due to Judge A. V. Ragan, on whose plantation the section occurs, for first drawing our attention to it by sending a vertebra of the Zeuglodon found there to the Military Academy, and also for hospitable aid upon our visit to the spot. If the people of the State more generally understood that the proper receptacles of all natural curiosities are the museums of our institutions of learning, our data would be much more numerous, and our conclusions respecting the structure of the State more reliable than they are.

Proceeding down the river from Montgomery, we find that the violent dip of the above section is soon reversed, and a few of the strata re-appear. This whole section will have to be carefully re-studied at low water, for too much of it was hidden at the time of my visit to render it worth while to detail the little I saw. I have placed the southern boundary of the formation at about four miles above the mouth of Bayou Nantaches, but this is only an approximation to the truth, which I hope to ascertain exactly next season.

I had not time to extend my observations to the mouth of Bayou Saline; but being informed, as I think reliably, that the same marl bed as that at Montgomery crops out close by, I have drawn the northern boundary to that point. This line also may have to be corrected,

As for the belt of territory between the two principal outcrops, I have examined it upon Castor bayou and further east, near the line between Catahoula and Caldwell. It is generally rather level, excepting when covered by the drift, which occasionally, as at Montgomery, is of considerable depth. Its soil, where the drift is absent, is strong and fertile, much better than the average of uplands. Black land prairies dot its surface, and are as good land as any in the State. I have seen some fossils said to have been dug from a well on Hancock's Prairie, at a depth of twenty feet, that are of Jackson age. They are a *Dentalium* and a *Cardita*, with crenulated ribs, which occur also at Montgomery. I visited Pendarvis' Prairie, near the mouth Bayou Castor, and found that it also rests on Jackson strata. The *Cardita* and a *Pecten* are common to these strata and the *Zeuglodon* matrix. Between the prairies a post-oak flat-woods interrupts the long-leaved pine that clothes the lignitic strata close to the Jackson line on the north, and the Grand Gulf series up to the southern boundary of the Vicksburg. The lands upon this belt are mostly unentered as yet, their being hidden in the pine woods having prevented their being duly appreciated. They will repay the settler well.

At the point where the Harrison and Columbia road crossed the line between Catahoula and Caldwell, the hills rise very high, though still free from drift. In a gully at the roadside is exposed—

1. Four feet yellow loam.

2. Sixty-three feet whitish yellow streaked clay, with crystals of selenite like that at Grandview. This point being but six miles from Grandview, the thick seleniferous clay is undoubtedly a continuation of the *Zeuglodon* stratum of that place.

But few opportunities have yet been found of studying the dip of the Jackson strata. At Montgomery it is to the west of south; but it is to be noticed, that here this outcrop ceases, and it is replaced on the southwest bank of Red river by the Vicksburg strata; not because the Jackson beds do not exist on this side of Red river, but because this dip brings them *below* the Vicksburg, so that the latter only can be represented on the map. South of Pendarvis' prairie, gypseous Jackson strata are struck in wells, that are dug in Vicksburg territory. This shows that they must dip toward the south southeast, a direction corresponding very well with their position in Mississippi, and no doubt true in the main for the entire group.

How far they extend under the Vicksburg beds is uncertain. Even if the latter are represented in Calcasieu, the Jackson are wanting at the sulphur well.

I have not yet examined the country southwest of Red river, in the line of the strike of the Jackson outcrop. Professor Hilgard reports that he failed to find it on the Sabine. At Natchitoches there is a bluff on Cane river, the section of which will be given further on, which has Vicksburg strata above, and lignitic below, with a series of beds between that *may* represent the Jackson. It is better however, to say nothing positive as to the existence of this group on that side of Red river, until further investigation.

I have already spoken of the large number of fossils found at Montgomery. None of the other outcrops have proved as rich as this, or added any species to the list of those found there; and a complete catalogue of these fossils would close appropriately my remarks on the group. But my collections contain many specimens that are not yet determined, and those that are, are mostly yet boxed up in Alexandria, awaiting the final decision as to the new location of the Military Academy, and I have no record of their names. The following are all that I can recall at present; but ultimately the list will be much extended:

VERTEBRATES.

Zenlodon Macrospondylus.

Oxyrhina Desorii (teeth and vertebrae).

Galeocerdo latideus (teeth).

Two or three other species of fish allied to the Gar pike.

UNIVALVE SHELLS.

Volutilithes spinosus.

Fusus pachyluerus.

Melongena crassicornuta.

Mitra conquisita.

Solarium triliratum.

Solarium, four other species.

Natica, two species.

Naticina, (near) papilla.

Turbinella protracta.

Parmophorus.

BIVALVE SHELLS.

Cardita planicosta.

Panopæa oblongata.

Byssoarca lima.

Byssoarca Mississipiensis.

Avicula argentea.

Pinna membranous (Morton).

Chama (near) Mississipiensis.

Pinna argentea.

Cytherea pyga.

Cytherea lenis.

Calyptrea.
Hipponyx.
Platyceras.

Crassatella, three species.
Pectunculus (near) Miss.
Cardium Diversum.

CORALS.

Astrea Mississippiensis.
Madrepora Mississippiensis.

Astrea, another species.
Orbitoides Mantelli.

There are here many fossils belonging to the Vicksburg strata in Mississippi, and among them the Orbitoides Mantelli itself, the shell heretofore considered *characteristic* of the Vicksburg strata, as the Zeuglodon is of the Jackson. Their occurrence together, in one *undisturbed* stratum, has never been observed before, a somewhat similar case in Alabama having been explained by the position of a Vicksburg bed, above one of Jackson date. The debris of both, of course, contained a mixture of the fossils peculiar to each. But no such fossiliferous strata exist over the zeuglodon bed at Montgomery, and the orbitoid was found by myself, among the very bones of the zeuglodon, as clearly in situ as they. It may be thought that, perhaps, this is a transition bed between the two epochs. But it immediately overlies the lignite, which is visible at low water, and belongs to the Mansfield group. This suggests that it should be quite low in the Jackson series. It is possible, however, that it is transition in age, and that all the lower Jackson beds may be wanting here, as the whole group is said to be in the Sabine. At all events, the orbitoid can hardly enjoy its former rank as a *characteristic* species, since it is now proved to have lived in the Jackson as well as the Vicksburg epoch.

THE VICKSBURG FORMATION.

Bounded on the north by the Jackson outcrop, as far as that extends, and by the Mansfield group where it is wanting, the Vicksburg strata occupy a strip of country varying from seven miles in width at its eastern extremity near the Ouachita, to nineteen miles south of Natchitoches, and perhaps more toward the west where I have not yet examined it. Part of its territory is deeply covered by the Orange sand, while part is free from it. It dips beneath the rocks of the Grand Gulf series, which bound it on the southeast. I have only crossed it at four points, viz, between Bellewood and Natchitoches;

between Gilmore's Ferry and Pendarvis' prairie, on Bayou Castor; in a southeast direction, back from that point to Centreville, on Bayou Funné Louis; and finally from T. 10, N., R. 5, E., sec. 15, a point on the Harrisonburg and Columbia road, to the Jackson section already given, on the line between Catahoula and Caldwell.

On the road from Bellewood to Natchitoches, after the last of the Kisatche hills is passed, a change in the vegetation occurs. The blue jack oak taking the place of the common black jack, and thorn trees becoming abundant. At nineteen miles from Natchitoches a soft yellow limestone is found in rounded masses in the road, and is full of casts of the Vicksburg fossils, badly preserved. At six miles further on to the north, a limestone full of green-sand grains and with an orbitoid allied to *O. Mantelli* crops out in masses similar to the other. At five miles from Natchitoches the banks of a creek contain a singular limestone, full of fissures filled with calc. spar., which is so abundant that it has been burnt for lime, and the place is called the Kilns. These rocks are all characteristic of the Vicksburg formation, but the country around them is covered by the drift, and no good section occurs until we reach Natchitoches. There, about a half a mile above the town, is a very interesting bluff affording the following section:

Vicksburg.	{	1. Thirty feet of reddish clay, with orbitoides and ostra in abundance.
	{	2. Twelve feet of reddish clay, with nodules of carbonate of lime and greensand.
Vicksburg strata or Jackson?	{	3. Five feet of clay, with greensand, nodules and shells.
	{	4. Fifteen feet of clay, with greensand and shells. These four strata are cracked by upheavals. The cracks are filled by redder clay.
	{	5. Four feet blue clay shales and shells.
	{	6. Chloritic sand.
	{	7. Three feet ferrug. clay and shales—red.
Mansfield Lignitic.	{	8. Fifteen feet layers of sand and red clay, with hollow ferruginous nodules.
	{	9. Twenty feet indurated white micaceous sand. Dip ten degrees southwest, nearly.

We have here not only a good section of an undoubted Vicksburg bed, (No. 1), but a number of layers containing greensand, a notable constituent of the marl bed that contains the *Zenglodon* at Montgomery. It is possible that these represent the Jackson series, and

if so the section becomes doubly interesting, as the first we have yet seen showing three groups at once in their proper succession.

Two miles east of Gilmore's Ferry, over Little River, in Catahoula parish, T. 9, R. 2 E., sec. 18, there is a very high hill near the top of which the soft yellow limestone occurs again, full of casts as before. The flanks of the hill were too deeply hidden by underbrush and yellow loam for a complete section to be obtained, but the road showed the following:

1. Fifteen feet red spotted and red clay of the drift period.
2. One foot yellow fossiliferous limestone.
3. Five feet smooth yellow clay.
4. Fifteen feet white clay, with deep red streaks.
5. Five feet blue clay, also red streaked.

There is much resemblance between these red streaked clays and those of the Orange sand, but they are smoother and of a more massy cleavage. The road from this hill northward descends to a post oak flat, whose soil showed only the yellow and red streaked clays. In a well on Mr. J. N. Hamilton's place, the following section was reported by Mrs. H.:

- | | |
|-------------|--|
| Vicksburg.. | <ol style="list-style-type: none"> 1. Five feet, yellow clay. 2. Eight feet, blue clay, with red streaks. 3. Three feet, bluish clay, with white nodules. 4. Four feet, blackish clay, with spiral shells. |
|-------------|--|

Jackson.—5. Twelve feet, grey clay, with crystals of gypsum, a complete layer.

No specimens of the shells could be obtained, but the gypsiferous clay resembles the zeuglodon matrix at Grand view, and as it is conceded that the Jackson series underlie the Vicksburg, it properly belongs to that group. The flat character of the land continues beyond Cochrane's creek, where at Mr. A. Gilmore's farm the yellow clay becomes marly, and small prairies are found, abounding in large oyster shells, and small helices and paludinæ, and the land of these prairies is still yellow. But within five miles of the first occurrence of the Vicksburg strata, is Pendarvis' blackland prairie, already mentioned as overlying the Jackson outcrop, here, and of course beyond the limits of the Vicksburg.

Returning from Pendarvis' farm, we took another road leading again across the Vicksburg strata, in a southeast direction, to Centerville on Bayou Funnè Louis. The distance is about ten miles, but

does not show the real breadth of the outcrop, because not perpendicular to the line of strike. The first six or eight miles were over a post oak flat, gradually becoming more hilly toward the southeast. Another outcrop of the yellow limestone occurred at this distance, somewhat less fossiliferous than before. The soil consisted of the same yellow clay, overlying the red streaked joint clay that was shown in the section at Gilmore's Hill. The former became less calcareous, and more sandy, as we approached the Funnè Louis, and was sometimes exposed in washes, to a depth of over twenty feet. The latter also increased in thickness, appearing to form entirely several hills, forty or more feet in height, at a place where the yellow clay is wanting. This whole region is badly watered, having no springs; and although the soil appears to be good, has but few inhabitants. If the farmer, however, would but supply himself with cisterns, there is no part of our uplands better adapted to the culture of cotton.

Beyond Centreville, we strike the drift in force, overlying the clays and sandstones of the Grand Gulf group beneath which the Vicksburg beds disappear.

Haralson's, on the Harrisonburg and Columbia road, the next point where our path crossed these beds, is twelve miles northeast of Centreville. The road runs due northwest, and is more hilly than before. The limestone, that is the first sign of a change of formation, is white and of remarkable hardness. It contains many fossils different from those of the yellow stone before mentioned, with others that are similar. *Pinna argentea* is common to these stones, and the Jackson, at Montgomery. But the yellow, loamy clay in which they are imbedded, is full of the *Orbitoides Mantelli*—the most characteristic fossil of the Vicksburg series. In the bank of a creek, a mile to the west of this point, more than ten feet of this yellow clay are exposed, and furnished us with fine specimens of the *Orbitoides Mantelli*, *Pecten Vicksburgensis*, a small *Conus*, and other shells. Not quite a mile to the north, on the head waters of Sugar Creek, we took this section.

1. Ten feet red clay; drift.
2. Four and a half feet layers blue and red clay; aluniferous.
3. One foot and a half sandy yellow clay.
4. Half foot shell bed, a *Corbula* and one other genus; shells broken.

5. One foot alternate layers sand and clay; yellow.

6. Two feet sand, with lumps of clay.

The alternate layers of sand and clay in stratum five show a condition of things favorable to the deposition of lignite, and accordingly within one-fourth of a mile we find—

1. Five feet surface soil and sandy yellow clay.

2. One foot and a third sandy yellow clay, and sand in layers—stratum three, last section.

3. One foot and a half sand with lumps of clay—stratum six, last section.

4. Two feet alternate layers yellow sand and purplish clay.

5. Two feet blue sandy clay, with ferruginous streaks.

6. Two feet lignite.

7. Three feet black clay, layered with sand.

Evidently, then, the lower beds of the Vicksburg group are lignitic. Whether these beds are connected or not with those of the Mansfield group, but a few miles off, but on the other side of the Jackson outcrop, is, as yet, uncertain.

A mile to the northwest of Grandview, while searching the banks of a creek for bones of the Zeuglodon that we are assured were there five years ago, we came upon Vicksburg fossils again, including the *Orbitoides Mantelli*. This either shows that we have here a very irregular boundary between the two formations, and one which it will require close surveying to trace accurately, or else the orbitoid occurs with the Zeuglodon here, as at Montgomery. We did not find the Zeuglodon bones here, however, although several testified to having seen them some years ago.

Our specimens of Vicksburg fossils are neither as numerous nor as well preserved as those of the Jackson series, nor have I had time to determine them. Reserving the list therefore for a future report, I pass on to

THE GRAND GULF GROUP.

Beginning in Sicily Id., on the East, the Northern boundary of this group runs across the Ouachita, at the mouth of Bayou Bœuf. Curving Northwestwardly from the western bank of the Ouachita it culminates in the Chalk Hills, which are situated in Section 6, T. 10 N., R. 5 E. Here it turns to the S. W., following Bayou Funne Louis to a point below Centreville. Then turning N.

W. again, it reaches a hill some two miles East of Gilmore's Ferry over Little River. Turning southwest again, it passes some five miles North of Colfax, until interrupted by Red River. Reappearing in the Clontierville and Kisatche Hills, it ranges almost due West to the "Bad Hill" seven miles South of Manny, in De Soto, and reaches the Sabine, near the mouth of Bayou Negrut. Beginning again at Sicily, Id., the Southern boundary runs across the Onachita at Harrisonburg, then S. W. to Catahoula lake, and South to Cassandra on Red River, in Section 33, T. 3 N., R. 5 E. Interrupted here by the alluvion of Red River, it reappears beyond Bayou Cocodrie, then turning South and Southwest, it ranges along the Northern borders of prairies Mammou and Calcasieu. Its return to the Sabine has not yet been closely noticed; and indeed some other parts of these lines may need correction.

The materials of this group are chiefly sands, soft sand stones, and clays, in many alternations. There are also a few marl beds, but they are rare. The clays are of every degree of fineness, from the snowy alumine of the so-called Chalk hills, from which fine crockery-ware can be made, to the more common joint and blue clays, that are only fit for brick. The marls, though few, are rich. The following sections show the peculiarities of this group sufficiently well.

AT HARRISONBURG.

- | | | |
|--|---|--------|
| 1. Fifteen feet, red clay, with pebbles. | } | Drift. |
| 2. Seven feet, sandy yellow clay. | | |
| 3. Four feet, sandy pebble conglomerate. | | |
| 4. One and a half feet, sandy joint clay, red striped. | | |
| 4. One foot fine white sand stone. | | |
| 6. Ten feet, blue clay, massy cleavage. | | |
| 7. One foot sand rock, with layers of clay. | | |
| 8. Seven feet, bluish clay, massy cleavage. | | |
| 9. Fifteen feet, hard white clay, | | |
| 10. Eight feet, ledges of sand rock, from three feet to three inches thick, separated by layers of clay. | | |
| 11. One foot, light clayey sand. | | |
| 12. Three inches grey sand rock, very hard. | | |
| 13. Ten feet, clay, massy spherical cleavage. | | |
| 14. Seven feet, white and ferruginous clay shales. | | |

AT THE CHALK HILLS.

1. Fifteen feet, sand rock and surface soil.
2. Six feet, "chalk," a very fine white clay.
3. Five feet, indurated and cracked clay rock.
4. Thirty-three feet, clay with massy cleavage.
5. One foot, indurated cracked clay rock.
6. One foot, ochreous yellow clay.
7. Fifteen feet, yellow streaked clay shale.
8. Twenty-five feet or more, massy blue clay.

The sand rock and clay of these sections are found throughout the whole extent of the formation. The fine white clay is much less abundant. It occurs in pebbles, in wells, on Sicily island; but no where else that we have heard of, excepting in the above hills. Deeply covered by the drift deposits, as the Grand Gulf strata are, good out crops are by no means abundant. We owe thanks to the Hon. J. G. Taliaferro, for calling our attention to these. The following section occurs at the falls, above Alexandria, Red River:

1. Three feet red clay,
2. Three feet pebbly yellow clay, } Drift.
3. From four to twenty feet sandy clay, with concretions of lime, and iron ore.
4. Eight feet soft sand rock, white.
5. Seven feet marly blue, yellow and red clay, to water.

The sand rock crops out frequently on the various creeks tributary to Little river, and to Red river as far up as Colfax, and is especially abundant on Cane river and Bayou Kisatche. The head waters of Nezpique show one of the most southerly exposures in the State. The quality of the stone is too variable to render it very valuable as a building material, although ledges occur occasionally, durable enough to stand both fire and weather. In hardness it ranges from an almost crumbling condition to that of the grittiest flagging stone. The color, generally a fine white or grey, is too often spoiled by ferruginous stains; iron being almost universally present in both sands and clays of this formation. The same metal gives to the clays that frequent marbling with red and yellow, which leads to their being commonly called "soapstone." Silicified wood is the only fossil as yet detected, but it is quite common and of several varieties. The palm (*Sabal*), and several exogens not yet specifically determined

are well represented in our collections. The strata are generally nearly horizontal, but many places show slight southeast dips. The disturbances, though noticeable enough where the hills are high, as at Harrisonburg, are by no means as great as in the older members of the tertiary. The drift covers the area of the Grand Gulf strata even more deeply than those that we have already considered; and here as elsewhere, we find occasional evidence that the principal hills had received something of their present form before the drift period; and also that the current during that epoch, flowed from the north. The hill at Harrisonburg is a good example of this. The drift yet remaining on top, is above twenty-five feet in thickness, and the north and northeast sides are still hidden by it; and where exposed in washes, it is seen to consist of its own far-traveled clays and pebbles; but on the south it is largely intermixed with pieces of sandrock, which the hill itself has furnished.

The soils that the Grand Gulf series furnish are usually too purely sandy or clayey to be fertile. The creeks, however, form good bottom lands by the intermixture of these materials. Where the marls crop out, as at Anacoco prairie, the lands are excellent and equal to any in the State. But, as a general thing, this group is the home of the long leaved pine and can only be made profitable for lumber, charcoal and turpentine manufacture.

The formation of the Grand Gulf strata closed the tertiary period. They must have been elevated to about their present height, and stood so for a long time, ere the hills could have so nearly taken their present form and furnished the forests, whose silicified fragments are our only hints as to the life of those distant times. The next geological event that affected our State, in common with the rest of the world, was a great elevation of land in high latitudes, accompanied with a depression of that lying more to the south; an arrangement productive of great cold. According to Dawson,* the eminent geologist of Nova Scotia, the whole lower part of North America was submerged as far as the Laurentide hills of Canada, excepting a few of the highest peaks. These peaks and the valleys of Canada, debouching on the St. Lawrence valley, were full of glaciers which continually launched icebergs into the sea.

The natural effect of this was to cause the cold Arctic current,

* See "Acadian Geology," p 72., London. 1863.

which to-day hugs the northeast shores of the continent, to pass up the St. Lawrence valley, hollowing out the basins of the great lakes, and scattering the fragments of the strata it denuded over the country toward the south and southwest. This period has been called the "Glacial," from the great prevalence of glaciers while it lasted; and geologists have disputed a good deal as to which agency has produced the greatest effect, viz: the glaciers in situ, or the icebergs that were produced by them. The effects to be explained in northern latitudes are, striation of rocks, sometimes in parallel grooves, and sometimes in several directions; the transportation of a large amount of material, and its deposit in the form of ill stratified clays and sands, full of boulders, often of great size, and sometimes carried from a lower to a higher level. Dawson's theory to account for this latter class of facts is that the change of level was gradual, allowing ice to form about rocks near the sea shore, and push them farther on as the land sank year by year. Icebergs grounding upon rocks would cause parallel striae. A second berg, grounding where another had previously formed grooves, might make a new set, whose direction would be independent of the first. But where the grooves are all parallel to each other and the valley in which they occur, such valley must have been above the sea level, and occupied by a glacier. Both bergs and glaciers transport stones of almost any size far from their original site. But the ill-stratified sands and clays that accompany the boulders must have been carried by the oceanic current that propelled the icebergs. Situated almost too far south ever to have been reached by the floating ice, the effects of the current from the north and northeast are alone sufficient to explain the deposits of our

DRIFT PERIOD.

The "drift" has necessarily been referred to in describing the tertiary formations, all of which it overlies to some extent. It consists of strata of sand, and red and yellow clays, with pebbles of various sizes, sometimes intermixed and sometimes in a regular layer beneath the others. Many of the sections already given, on pages 85, 86, 87, 88, 90, and 91, illustrate this. The pebbles that form its great characteristic differ somewhat in different parts of the State. Near Harrisonburg they are small fragments of solid quartz, mixed with various jaspery and cherty flint rocks, sometimes united

into a conglomerate by a ferruginous cement; but no trace of fossils could be found in them. Near Alexandria, on the other hand, the fragments are often larger, and many contain silicified fossils, or casts of fossils. About Grand Ecore and the Bayou Pierre bluffs, these are wanting again, but are largely replaced by fragments of concretionary iron ore, derived from the beds of the Mansfield group. Near Shreveport, pebbles are almost wanting, but reappear further to the northeast, consisting almost entirely of the iron rock, the quartz being very small in amount. These differences, as we proceed in a northwest direction, clearly depend on differences in the country to the northeast, that was swept by the great Arctic current of the Glacial period. They are by no means so great when we travel in the direction of the current, instead of across it. I have, for instance, very similar specimens from Dr. Kirkman's well, in Calcasieu, the kilns in St. Landry, the old site of the seminary, near Alexandria, and Helena, Arkansas—places almost on a line with each other; in a north northeast and south southeast direction. This, therefore, I suppose to have been the general direction of the current.

As to the rocks whence the pebbles were derived, we have as yet discovered little. Those that are fossiliferous are partly Silurian, and partly Carboniferous in their origin. I have recognized the *Favosites Gothlandica*, and *Halysites catenularia*, among the former, *Fenestella Lyelli* and two other species, mentioned by Dawson, among the latter. Next to these *Fenestellae*, the most common fossil consists of casts of several species of encrinite stems. The heads of four species have also been found. Two were unrecognizably imperfect. The others were *Zeacrinus elegans*, and *Pentremites pyriformis*, both carboniferous. Now there are silurian and carboniferous strata in Arkansas, as well as in Kentucky, Ohio, and the other States west of these, and north of us. Which of these furnished the pebbles is not yet decided, though the trend of the current points and rather to the latter and more distant sources, than to our sister State, who was herself a large recipient of similar deposits. Another problem of some interest presents itself. These fossils were once composed of carbonate of lime. They are now very uniformly transformed into an impure jaspery flint, generally of a dull yellowish color, but passing occasionally into as dull a red; both hues being due to the presence of iron. The question is, were they silicified before or after transportation? On the one hand the sameness of appearance

of fossils so widely separated in time as the silurian and carboniferous favors the idea that their change must have been due to the same cause, to which they could only have been subjected together, after removal to their present site. Silicification is very common even yet in the drift deposits, which are mainly of sand and sandy clays, as is shown by the abundance of silicified wood of modern species that they contain. On the other hand, the very prevalence of sand that causes this shows that the country denuded by the drift current contained abundance of quartz rock to begin with, and if there is any difference between the sizes of fossiliferous and non-fossiliferous pebbles, it is in favor of the former. It may be contended that the friction on the journey that reduced the original pieces of undoubted quartz to their present small size would have rendered masses of limestone still smaller; the inference drawn being, then, that the large fossil-bearing pebbles were at least as hard as the quartz when they both started. A larger number of facts must be gathered and compared before the point can be definitely settled. The study of the fossils has hardly yet been fairly commenced, and the unrecognized specimens are numerous.

The country covered by the drift, *i. e.*, the areas of the Grand Gulf, much of the Jackson and Vicksburg, and almost all the Mansfield groups, comprises the upland region of the State. It is, in general, broken and hilly, the height of the hills depending principally upon the underlying tertiary strata. The highest are on the territory of the Mansfield group, between Monroe and Shreveport; but the Harrisonburg, Cloutierville and Kisatche hills are of Grand Gulf age, as we have seen already. The intervening region of the Jackson and Vicksburg is lower, and often entirely bare of drift, as is the case also with the marly regions of the Grand Gulf. Perhaps the presence of lime in a soil renders it more penetrable by water, and therefore more subject to denudation, so that an oceanic current, conveying detritus, would deposit it most heavily where there was least lime. Whatever the explanation may be, this appears to have been the fact.

The drift has not increased the fertility of the region that it covers. It is generally rudely stratified, with the pebble stratum below, covered by orange colored sand, and this by white and colored clays, passing into a sandy red clay. This red clay forms the tops of the hills, and is the best soil of the series. It needs fertilizing with

organic manures and marls, but retains well what is added to it, and is the mainstay of our pinewoods farms. On the sides of the hills the sand layers appear, and are not only poor, but so porous that the effect of fertilizers is soon lost. Clayey marls, where attainable, are the best application for such soils. These sands are the source of the excellent springs for which this whole region is noted. Lower down, the valleys afford much better land, as is shown on the maps by the concentration of population along the creeks. The underlying strata have here been mixed with the material of the drift, and the resources of the soil are much greater. It is evident, however, that in the development of our piny-woods region, we cannot apply the principles learned on the wide plantations of our noble alluvions, nor attempt to make the whole of a farm grow the same thing. The suitableness of the soils to different crops, and their need of different fertilizers, should both be well considered by the farmer. The attention of the survey has been altogether directed to geology proper this year. But, if means are placed at its disposal to enter on the analysis of soils, many facts will soon be elicited of the greatest practical import to the farmer. This branch of the survey is a tedious and difficult one, and needs much more time than we can devote to it, to develop it in a proper manner. The day has passed, however, for people to be content to wear out a light soiled upland farm every few years, and move to a fresh piece as soon as the old is ruined. The interests of the future imperatively demand that we should take care of our soil and improve it; and this can only be done by the enlightened application of proper fertilizers, chosen as supplying to the soil all the elements of the plants to be raised.

Much of the State is commonly supposed to belong to the piny-woods region that is really more fertile, being of the Jackson and Vicksburg formations, where the drift is often wanting altogether. The growth is here much more varied, the post oak replacing the pine. These regions should be recommended to settlers, being high and healthy like the pinewoods around them, while the soil is much better. It is difficult at present to say how much of the Mansfield territory is occupied by drift. The fertile red soils in Jackson and north Bossier parishes are free from it, as are also wide ranges of poor and sandy soil, where the sand members of the Mansfield group itself occupy the surface. But wherever the hills are high, it is pretty sure to be present, and can be recognized by its red clays, orange sands and pebbles; but especially by its unconforma-

bility to the strata below, and the irregularity of its own stratification. The long-leaved pine grows as well on the sands of the Mansfield as on those of the drift. Along the Southern boundary of the Grand Gulf area, the drift deposits are found to dip beneath the prairies. At Dr. Kirkman's well, in Calcasieu, they are found at three hundred and thirty-four feet below the surface, and were not yet penetrated at four hundred and twenty-five feet. Along the Mississippi, the bluff formation rests upon them, and is the next in order that remains to be considered.

THE BLUFF FORMATION.

The Glacial period was brought to an end by a reversal of the continental motion that caused it. The lands at the north sank until Montreal was at least six hundred feet lower than at present, while this part of the country was elevated, though not to its present height. The Mississippi was a fresh water estuary, extending at least from Bayou Magon hills, on the west, to a line beginning about five miles east of Yazoo, Miss., and drawn from sixteen miles east of Vicksburg, parallel to the general course of the Mississippi, to a point on the State line, twelve miles east of the river, and thence thirteen miles east of Baton Rouge to near the mouth of Amite river. A submersion of this extent must have left all of the prairie and alluvial regions still under water, while only the tertiary, with its drift, was dry.

During the prevalence of this state of affairs, the Mississippi deposited a mass of material, in some places more than seventy feet thick. Its lower members are often composed of white and buck-shot clay; the upper, of yellow calcareous silt. The chief characteristic of these deposits, is their extreme fineness. There could not have been much current in so broad an estuary, and the waters could only carry the finest portion of their burden of soil to their far apart shores. On other streams also the same cause produced similar effects, the character of the deposit differing for each stream. Bones of the mastodon, and shells of land snails are the most common fossils of the period; but are by no means plentiful. The smaller ramifications of this formation therefore are not always easily recognized, and we have not yet had time to study them completely. Judging from its relation to the drift, moreover, a large part of our present prairie region should prove to be a marine diluvium of

parallel age; and this also remains to be examined. But however little we have gathered as yet, respecting the local peculiarities of the Louisiana bluff, the researches of others have left no doubt as to the sequence of events that gave it its present form. The land continued to rise, until the deposits of that age now form the bluffs of Tunica, St. Francisville, Port Hudson, and Baton Rouge. The rivers were obliged to cut their channels deeper, and ever changing them as they formed their present alluvion, and infringing now on one side and now on the other of their ancient estuaries, they have washed out the central portions of the bluff deposits, and left but a narrow belt upon each side, to show their former extent.

On the eastern side of the Mississippi the line already given as the probable former limit of the estuary, is now the boundary between the bluff and drift. The western line on the same side touches all the easterly bends of the river, from Vicksburg to Baton Rouge, and thence crosses south-east, to Pass Manchac, where it finally subsides.

This part I have not seen myself, but it has been surveyed by my colleague, Colonel S. H. Lockett. On the west of the Mississippi a low range of hills forming the western bank of Bayou Maçon, is the northern representation of the bluff. The lower members alone are present, and are but slightly, if at all calcareous. A white "crawfish" and a yellow "buck shot" clay, overlaid by a yellowish silt, are all that are exposed in the railroad cut at Delhi, but they are of the characteristic fineness. The hills are interrupted in their course by the alluvions of Deer creek, crossing which we come to Sicily Island, where the formation reappears in a more characteristic manner. It will be remembered that a part of this island is composed of Grand Gulf tertiary strata, overlaid by drift. This dips, in its turn, beneath the bluff, which extends from two miles above Bayou Louis to Doctor H. Peck's plantation, a space of about twelve miles in length, by from three and four in breadth.

The following section of a well, at Mr. E. Tiller's place, shows the relation between these formations:

1. Twenty feet yellow silt. Bluff.
2. Five feet coarse, sandy, yellowish clay. Drift.
3. Three feet yellow sand; pebbles. Drift.
4. Twenty-two feet clay, coarse and sandy; lumps of white clay.
5. Five feet grey sand rock. Grand Gulf.

The drift here derives its lumps of white clay, commonly called "chalk," from the underlying Grand Gulf strata, in its usual manner. The "chalk" is identical with that of the "Chalk Hills" in north Catahoula, already noticed. The yellow silt is calcareous, washes at the road sides into peculiarly perpendicular bluffs, and is, in fact, precisely similar to that at Vicksburg, which may be taken as the type of the formation.

Below Sicily Island the alluvial formation prevails and I know of no more "bluff" due to the Mississippi river. The calcareous silt of Sicily Island is more typical of this formation in Mississippi than in our own State, for at Baton Rouge, again, the proportion of carbonate of lime is small. The fertility of bluff plantations is only second to that of the best bottom lands; but they are very prone to wash, and the gullies need to be "circled" carefully to prevent it.

The time allotted to the survey, so far, has not been sufficient to allow of our examining our prairie region, or the alluvions and sea border. Even the great salt mine at Petit Anse and the brine wells on Castor and the Saline must wait for future explorations. The parishes east of the Mississippi, also, have not received the attention that they demand. I have not been able to present you with a full account, either of the facts observed or the conclusions drawn from them, for there are many that are reserved for further corroboration before they can be brought forward. The absence of our specimens, which have remained boxed up at Alexandria, since the fire which destroyed the State Seminary, has prevented our laying before you anything like a complete list of fossils, while the great branch of soil analysis has not yet been begun, and the outlines of the formations can be only approximately determined. Our work, then, is to be looked upon as merely commenced, and this report as strictly preliminary.

But, moderate as the amount already accomplished is, compared with that which remains to be done, the appropriation for the purpose was overdrawn before it could be completed. Five hundred dollars apiece, in State warrants, have not sufficed to defray our traveling expenses, and supply us with the necessary instruments. It will cost much more to fill up accurately the outlines we have laid down than it has to draw them with only general correctness. We will need to employ a force in the field in the topographical department of the survey. Another will often be required to open up thoroughly the localities of fossils that have been discovered,

New species will have to be submitted to the examination of those whose eminence in science entitles them to be consulted as to their classification and names, and all such services should be paid for. The collections must be properly mounted in the Museum of the Survey, which is to be used by the Military Academy ; and finally, the laboratory for analysis will have to be completely refitted, since it was destroyed with the rest of the Seminary building.

It is sincerely to be hoped that, in view of the above facts, that this year's appropriation will be such as to do honor to the State, and give all possible efficiency to our efforts.

In debating the question, whether or not to send a map, with the accompanying report, we were induced to do so by the fact that it is impossible to understand such a mass of local detail without one. At the same time, we have not yet finished the survey, and are not able to be very accurate. We cannot impress this point too strongly, for fear that our work may mislead. The map, then, is not to be taken as a true representation of the State, but is only to be referred to as illustrating our four months' work.*

I have the honor, gentlemen, to subscribe myself, yours, etc.,

F. V. HOPKINS. Prof. of Geology, La. S. S.

Respectfully forwarded to the Honorable Board of Supervisors.

D. F. BOYD, Superintendent.

* This map, for want of time, has not been engraved.



REPORT
ON THE
BOTANY OF LOUISIANA,
BY PROFESSOR A. FEATHERMAN.

Colonel D. F. BORD, Superintendent of Louisiana State Seminary:

Prompted by your encouragement, as well as my own inclination you are well aware, that I have offered my services to the Seminary, in addition to the duties devolved upon me by virtue of the appointment to the professorship of modern languages, for the purpose of contributing, as far as means and opportunity would allow, to the collection of materials, representing the botany of the State of Louisiana in a scientific as well as practical point of view.

The science of botany receives but little attention in the High Schools of our country, except perhaps in Harvard, Massachusetts, and a few other schools of that character, where all the sciences are thoroughly taught, and where means are provided to follow step by step the new developments and discoveries, which are continually brought to light by scientific experiments.

Because botany includes the world of flowers within its province of investigation, the uneducated suppose that its study is a frivolous and fanciful pursuit, fit only for the sentimental school girl to serve as a means of recreation and amusement. It cannot be denied that practical botany, on account of the pleasant exercise it affords, the patient research it requires, and the purifying and elevating influence it exercises as an intellectual pursuit, would be a proper study for young girls, but, unfortunately, there are but few of our teachers who have a practical knowledge of the science, and as the technical learning and the stereotyped definitions of the text books present nothing that is attractive to the young mind, young girls generally have a natural taste for flowers, but they have little or no knowledge of botany.

But to make a thorough botanical exploration of a country, and to collect, classify and determine specimens for preservation is a task of considerable magnitude. Zeal, industry, patience and perseverance are indispensable prerequisites to bring an enterprise of that character to a successful termination ; and men of the highest talent, such as Torrey, Gray, Elliot, Michaux, Nuttall, Wildenow, and many others, have devoted their time and abilities to explore the botanical resources of our country, and have acquired a world-wide reputation as eminent botanists.

Nor should the practical importance of botany be overlooked. New plants are from time to time discovered by the professional botanist, which increase the number of our remedial agents, which alleviate pain or have a specific curative action in certain diseases. Others are introduced from foreign countries which have high economic value, or supply new materials for clothing and feeding the world.

It is incumbent upon the State of Louisiana, with the mouth of the Mississippi river within her borders, and with New Orleans, its largest city, as the commercial metropolis of the Southwest, not only to develop her commercial resources, but to take the lead in encouraging scientific and literary pursuits ; for a State, like an individual, no matter how rich it may be in material resources, can only acquire character and renown by fostering science and literature, and by establishing and supporting schools of learning of a high grade.

I trust that you will pardon these preliminary remarks ; but as the report which I am about to lay before you for your consideration is merely a voluntary contribution, and does not treat of any of the branches of knowledge which are comprised in the academic curriculum of the Seminary, I deemed it proper to make the foregoing explanations before entering upon the substance of this report.

The botany of the State of Louisiana, as far as I have thus far been able to examine it, is extremely rich, varied and interesting. Being engaged in other professional duties, my botanical excursions have only extended to the neighborhood of the old Seminary in Rapides and the immediate vicinity of Baton Rouge. With your kind assistance, I have been enabled to commence an herbarium of Louisiana plants, which will be a scientific contribution of permanent value to the institution, and from which generations that may come after us may draw profit and advantage.

The greatest number of the plants collected and preserved are such as flower or mature their fruit during the months of October

and November, specimens previously collected in September having been destroyed by the fire.

The following is a succinct statement of the number of plants now forming a part of the Seminary herbarium:

1. Flowering plants (<i>phænogamois</i>), exclusive of trees, etc., of which a list is annexed, marked A.....	120
2. Grasses (<i>gramineæ</i>), as per list marked B.....	45
3. Sedges (<i>cypraceæ</i> , including <i>juncaceæ</i>), as per list marked C.....	23
4. Ferns (<i>filices</i>), as per list marked D.....	13
5. Mosses (<i>musci</i>), lichens (<i>lichenes</i>), undetermined.....	20
6. Forest trees and shrubs, as per list marked E.....	34

As the number of books at my command, which treat of botany, is rather limited, many specimens, and especially those of the mosses and lichens, have not yet been determined, but I have the confident assurance that your liberality will readily come to my aid to provide, with the authority of the board of supervisors, special means, in order to enable you to procure such books and appliances as the successful prosecution of botany may require, without trenching on appropriations set apart for other purposes.

It shall be my object, if the proper means are supplied to make botanical excursions in various parts of the State, where difference of vegetation is to be looked for, on account of striking difference of locality, difference of climatic influences or marked difference of soil. To explore the botanical resources of the State, and obtain for preservation specimens of every plant that grows in Louisiana, so as to make the Seminary the depository, or, if I may be permitted the expression, the *hortum siccum* of the vegetation of the State, will require several years, and considerable labor, but no effort shall be spared on my part to accomplish the object, if, as before remarked, the means are furnished for that purpose.

To make the botanical department more practical, and to bring it in closer connection, with the geological and topographical survey, authorized by the Legislature, it would perhaps be advisable to entrust to it the statistical part of the survey, comprising the agricultural resources of Louisiana. Such a statistical compilation derived from personal observation, and the information of those who are most competent to give it, would not only be of great value to the State as a government, but it would also enable the immigrant to judge of the advantages, and appreciate the inducements offered for settling in Louisiana.

In order to carry out this object most effectually, it would be necessary, besides some special appropriation for that purpose, that the Legislature pass a law requiring the judges and clerks of the courts, and the sheriffs of the various parishes, for the consideration of a small fee, to answer and obtain answers from competent men of their respective parishes, to the circulars that may be sent to them from this department.

This statistical compilation would comprise the whole State, by parish divisions, and would furnish information concerning the quantity and quality of cultivated and forest lands, the nature of the soil, the species of forest trees, which grow most abundantly within certain limited sections; the weeds which are most widely diffused, the peculiarities of the prevailing vegetation, the kind of agricultural products raised, a proximate estimate of the quantity of each produced in an ordinary crop season, and the average yield per acre, and many other items which it would be too tedious to mention.

It would be impossible to develop here, in its fullest extent, the scope and import of a statistical compilation, drawn from the best sources at our command; but its great practical value can not fail to strike the mind of those who are aware of the fact, that the physical and industrial resources of Louisiana are less known, perhaps, than those of any other State of the Union.

All of which is respectfully submitted.

A. FEATHERMAN.

BATON ROUGE, January, 1870

LIST A.

FLOWERING PLANTS—(*Phænogamous plants*).

AMARANTH FAMILY—*Amarantaceæ*.

1. *Amaranthus Spinosus*, L.

DOGWOOD FAMILY—*Cornaceæ*.

2. *Cornus Florida*, L. (in fruit).

PINK FAMILY—*Caryophyllaceæ*.

3. *Siphonychia Americana*, Tor. and Gray.

GOOSEFOOT FAMILY—*Chenopodiaceæ*.

4. *Chenopodium anthelmonicum*, L.

SPURGE FAMILY—*Euphorbiaceæ*.

5. *Croton maritimum*, Walt.
6. *Euphorbia Ipecacuanha*, L.
7. *Euphorbia carollata*, L.
8. *Euphorbia maculata*, L.
9. *Euphorbia* (?)

GENTIAN FAMILY—*Gentianaceæ*.

10. *Gentiana ochrolenca*, Frael.

ST. JOHN SWORT FAMILY—*Hypericaceæ*.

11. *Hypericum prolificum*, L.
12. *Hypericum prolificum*, var.
13. *Hypericum* (?)
14. *Hypericum Sarothra* Michx.

LOBELIA FAMILY—*Lobeliaceæ*.

15. *Lobelia spicata*, Lamb.
16. *Lobelia amœna*, Mich.
17. *Lobelia cardinlis*, L.

LOOSESTRIFF FAMILY—*Lythraceæ*.

18. *Ammania humilis*, Mich.

EVENING PRIMROSE FAMILY—*Onagraceæ*.

19. *Jussiaea lepthocarpa*, Nutt.
 20. *Jussiaea decurrens*, D. C.
 21. *Gaura biennis*, L.
 22. *Laura angustifolia*, Mich.

WOOD SORREL FAMILY—*Oxalidaceæ*.

23. *Oxalis stricta*, L.

BUCKWHEAT FAMILY—*Polygonaceæ*.

24. *Polygonum hydropiperoides*, Mich.
 25. *Polygonum densiflorum*, Meisn.
 26. *Polygonum setaceum*, Bald.
 27. *Polygonum acre*, Kunth.
 28. *Polygonum Pennsylvanicum*, L.

PURSLANE FAMILY—*Portulaccaceæ*.

29. *Portulacca oleraceæ*, L.

POKEWEED FAMILY—*Phytolaccaceæ*.

30. *Phytolacca decandra*, L.

MADDER FAMILY—*Rubiaceæ*.

31. *Oldenlandia angustifolia*.

ROSE FAMILY—*Rosaceæ*.

32. *Rosa hevigata*, Michx.
 33. *Rosa Potentilla* (?)

CROWFOOT FAMILY—*Ranunculaceæ*.

34. *Clematis virginiana*, L. (fruit).

FIGWORT FAMILY—*Scrophulariæ*.

35. *Gerardia purpurea*, L.
 36. *Gerardia filifolia*, Nutt.

SMILAX FAMILY—*Smilacineæ*.

- 37. *Smilax rotundifolia*, L.
- 38. *Smilax* (?)

NETTLE FAMILY—*Urticaceæ*.

- 39. *Parietaria debilis*, Forst.
- 40. *Urtica dioica*, L.

VERVAIN FAMILY—*Verbenaceæ*.

- 41. *Verbena officinalis*.

BEAN FAMILY—*Leguminosæ*.

- 42. *Tephrosia spicata* (fruit), Tor. and Gr.
- 43. *Trifolium repens*, L.
- 44. *Lespedeza capitata*, Mich.
- 45. *Lespedeza horta*, Mich.
- 46. *Phaseolis diversifolius*, Pers.
- 47. *Cassia chamæcrista*, L.
- 48. *Cassia Marylandica*, L.
- 49. *Mimosa strigillosa*, Tor. and Gr.

MINT FAMILY—*Labiatae*.

- 50. *Salvia azurea*, L.
- 51. *Physostegia virginiana* (fruit), Berth.
- 52. *Monarda punctata*, L.
- 53. *Pycnanthemum muticum* ? Pers.

NIGHTSHADE FAMILY—*Solanaceæ*.

- 54. *Physalis angulata*, L.

PARSELEY FAMILY—*Umbelliferae*.

- 55. *Archemara rigida*, D. C.
- 56. *Discopleura capillacea*, D. C.

COMPOSITE FAMILY—*Compositæ*.

- 57. *Cirsium virginianum*, L.
- 58. *Cirsium muticum*, Mich.
- 59. *Rudbeckia horta*, L.
- 60. *Rudbeckia Helopsoides* (?), Tor. and Gr.

61. *Helianthus angustifolius*, L.
62. *Verbesina virginica*, L.
63. *Verbesina* (?)
64. *Eclipta procumbens*, L.
65. *Liatris elegans*, Wild.
66. *Vernonia angustifolia*, Mich.
67. *Bidens frondosa*, L.
68. *Erechtites hieracifolia*, Raf.
69. *Conoclinium cœlestinum*, D. C.
70. *Kuhnia eupatoroides*, L.
71. *Mikania scandens*, Wild.
72. *Eupatorium ageratoides*, L.
73. *Eupatorium album*, L.
74. *Eupatorium perfoliatum*, L.
75. *Eupatorium serotinum*, Mich.
76. *Ambrosia artemisiaefolia*, L.
77. *Ambrosia trifida*, L.
78. *Mulgedium accuminatum*, D. C.
79. *Hieracium granadii*, L.
80. *Crysopsis trichophylla*, Nutt.
81. *Crysopsis graminifolia*.
82. *Spilanthes Nuttallii*, Tor. and G.
83. *Spilanthes repens*, Mich.
84. *Eregeron Philadelphium*, L.
85. *Eregeron canadense*, L.
86. *Elephantopus Carabinaneas*, Weld.
87. *Pluchea foetida*, D. C.
88. *Pluchea bifrons*, D. C.
89. *Baccharis hamilifolia*, L.
- 90-97. Undetermined.
98. *Solidago Sempervivens* (?) L.
99. *Solidago spiciosa* (?) Lut.
100. *Solidago altissima*, L.
101. *Solidago odora*, Ait.
102. *Solidago caesia* (?)
103. *Solidago rugosa* (?)
104. *Solidago ulmifolia*.
105. *Solidago* (?)
106. *Solidago puberula* (?) Nutt.

- 107-108. *Solidago* (?)
- 109. *Solidago virgala* (?)
- 110. *Solidago* (?)
- 111. *Aster concolor*, L.
- 112. *Aster patens*, Ait.
- 113. *Aster ericoides*, L.
- 114. *Aster miser*, L.
- 115. *Aster adnatus*, Nutt.
- 116-120. *Aster* (?)

LIST B.

(GRASSES—(*Gramineæ*)).

- 1. *Setaria glauca*, Beauv.
- 2. *Agrostis scabra*, Wild.
- 3. *Agrostis perennans*, Gray.
- 4. *Eragrostis pectinacca*, Gray.
- 5. *Eragrostis reptans*, Nees.
- 6. *Paspalum racemulosum*, Nutt.
- 7. *Paspalum ciliatifolium*, Ell.
- 8. *Paspalum læve*, Mich.
- 9. *Paspalum digitaria* (?)
- 10. *Erianthus alopecuroides*, Ell.
- 11. *Glyceria aquatica*, L.
- 12. *Glyceria nervata*, Trin.
- 13. *Andropogon virginicus*, L.
- 14. *Andropogon scoparius*, Mich.
- 15. *Andropogon elliotii*.
- 16. *Sorghum nutans*, Gray.
- 17. *Panicum rufum*, Kunth.
- 18. *Panicum, sanguinale*, L.
- 19. *Panicum crusgalli*, L.
- 20. *Panicum dichotomum*, L.
- 21. *Panicum var barbulatum*, Mich.
- 22. *Panicum var lanuginosum*, Ell.
- 23. *Panicum var nitidum*, Ell.
- 24. *Panicum ænniculum* (?)
- 25-28. *Panicum* (?)

29. *Eleusine Indica*, Gaert.
30. *Aristata gracilis*, Ell.
31. *Aristata purpurascens*, Poir.
32. *Arundinaceæ gigantea*, L.
33. *Uniola gracilis*, Mich.
34. *Uniola latifolia*.
- 35-45. Undetermined.

LIST C.

RUSHES—(*Juncaceæ*).

1. *Juncus scirpoides*, Lamb.
2. *Juncus effusus*, L.
3. *Juncus marginatus*, Rost.

SEDGES—(*Cyperaceæ*).

1. *Rhynchospora paniculata*, Tor.
2. *Rhynchospora inexpansa*, Vahl.
3. *Rhynchospora corniculata*, Tar.
4. *Cyperus vegetus*, Wild.
5. *Cyperus flavescens*.
6. *Cyperus ovularis*.
7. *Cyperus retrofractus*.
8. *Cyperus strigosus*.
- 9-12. *Cyperus* (?)
13. *Eleocharis obtusa*, Shulte.
14. *Eleocharis simplex*, Tor.
15. *Scirpus eriophorum*, Mich.
- 16-17. *Carex* (?)
- 18-20. Undetermined.

LIST D.

FERNS—(*Filices*).

1. *Polypodium incanum*, Swartz.
2. *Asplenium ebeneum*, Ait.

3. *Asplenium felix fœmina*, Bernh.
4. *Aspidium ærostichoides*, Swartz.
5. *Aspidium Thelypteris*, Swartz.
6. *Aspidium patens*, Swartz.
7. *Onoclea sensibilis*, L.
8. *Woodwardia angustifolia*, Smith.
9. *Osmunda cinnamomea*, L.
10. *Osmunda regalis*, L.
11. *Pteris aquilina*, L.
12. *Pteris caudata*.
13. Undetermined.

LIST E.

TREES—(*Coniferæ*).

1. *Pinus mitis*, Mich.
2. *Pinus australis*, Mich.
3. *Cupressus thyoides*, Mich.

Hamamelaceæ.

4. Liquid amber *styraciflua*, L.

Cupuliferæ.

5. *Quercus alba*, L.
6. *Quercus aquatica*, Catesby.
7. *Quercus Georgiana*, Ell.
8. *Quercus* (?)
9. *Quercus coccinæ*, Wang.
10. *Castanea pumila*, Mich.

Juglandaceæ.

11. *Carpa glabra*.

Rosaceæ.

- 12-13. *Cratægus*.

Leguminosæ.

14. *Gleditchia triacanthos*, L.

Magnoliaceae.

15. *Magnolia grandiflora*, L.

Aquifoliaceae.

16. *Ilex opaca*, Ait.

- 17-34. Shrubs and vines undetermined.

Respectfully forwarded to the Honorable Board of Supervisors.

D. F. BOYD, Superintendent.



ANNUAL REPORT

OF THE

BOARD OF SUPERVISORS

OF THE

Louisiana State University,

FOR THE YEAR ENDING DECEMBER 31, 1870.

SESSION OF 1871.

NEW ORLEANS:

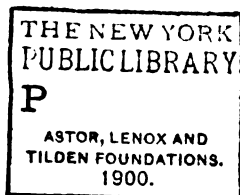
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REPORT

OF THE

BOARD OF SUPERVISORS.

To the Senate and Representatives in General Assembly, of the State of Louisiana, convened:

In behalf of the Board of Supervisors of the Louisiana State University, I have the honor to submit the annual report, required by law. The most serious question that now concerns the welfare of the University, is the procuring of quarters adequate to the comfort of its increasing numbers. It is well known, that since the destruction of the college building near Alexandria, the University has been temporarily located in the Asylum of the Deaf, Dumb and Blind, at Baton Rouge. But, although every effort has been made by those having the Asylum in charge to minister to the comfort and convenience of the inmates of the University, their present quarters are entirely too limited to admit of the successful prosecution of their labors. The institution has more matriculates than ever before, and the number would be considerably increased, but its want of room has not only deterred many other students from entering, but some who had already entered have, on that account, left for their homes. Now this ought not to be, after all the labor and money spent in endeavoring to fill its quarters, its walls should be enlarged to such an extent as to accommodate all who seek instruction within its limits.

We therefore respectfully urge, that the General Assembly adopt the recommendation of the Superintendent to place at the disposal of the University the whole of the Asylum building, until such a time as shall suffice to rebuild its college edifice. We are confident this can be done without incommoding the unfortunate persons for whose benefit it was erected. There are many buildings suitable for, and many localities favorable to the comfort and well-being of the deaf, dumb and blind, whose numbers are comparatively small, while

there is no other edifice in the State that would answer the purposes of a University building.

In the decision of this question, however, the comfort and wishes of the deaf, dumb and blind, and of those who have them in charge, should be of paramount weight. Temporary quarters being secured so that the University can continue to reap the benefits incident to its gradual and constant growth in usefulness, no time should be lost in restoring it to its permanent location. A literary institution can not be perambulatory and prosper for any length of time. There will ever linger around it a suspicion of insecurity, which will always prove an impediment to its prosperity. The youths who seek instruction under its shelter must have some fixed and permanent locality, to which the memories of after years can revert. The feelings of love and veneration with which the graduates of the great universities of the old world view their *Alma Mater*, are due as much to its ivy-mantled walls, which remount in their antiquity to a period distant many centuries in the past, as to the solidity of that instruction which prepared them to fight successfully the great battle of life.

That the old site of the State Seminary, in the parish of Rapides, is the proper place at which to erect a permanent edifice, and that the work of restoration should be commenced immediately, is a proposition which needs no long argument to demonstrate. That location was first selected, as being central in its position, reasonably easy of access, and because of its proverbial healthfulness. Its accessibility will be increased tenfold before the buildings can be completed. In a few years, Alexandria will be the centre of railroads, running to all portions of the State, thanks to the energy and determination which seem to animate those who have charge of the internal improvement system of our State. And even now the navigation of Red river is very good at those seasons when students go to and from the institution. Again, the retired location is so promotive of that discipline essential to the success of the University, being far removed from the temptations to vice, that this circumstance alone should determine the location in its favor. The difficulty in maintaining proper discipline at Baton Rouge, where more temptations are thrown in the way of the student than in the quiet pine woods of Rapides, has been considerably increased, though, we

are happy to say, it has hitherto been overcome by the exertions of the officers of the institution. Moreover, the University owns, at the old site, valuable buildings, extensive grounds, and a well timbered tract of land—the whole worth at least sixty thousand dollars—which, being worthless for any other purpose, would be a dead loss to the State, if the University should be located elsewhere. But the great consideration, which can not be ignored, is that the location near Alexandria has been proved to be as healthful as that of any similar institution in the country.

It was this prominent idea which caused its situation when the Seminary building was first constructed, and subsequent experience has abundantly demonstrated the wisdom of the choice. The mere suspicion that an epidemic would visit a literary institution is sufficient to keep it forever under ban. Now, the old site of the Seminary is singularly free from those pestilential diseases which sometimes prevail in our latitude. In the year 1867, when most of the towns and villages of the State were visited by the yellow fever, there was not a single case on the Seminary grounds when two hundred people were congregated together during the whole season. Not an hour was lost, by any one, from his duties, because of the slightest fear that he would be stricken down by the dreadful scourge.

For these reasons we would ask the General Assembly for the appropriation of about one hundred thousand dollars for the rebuilding of the college buildings at their former site, to be expended under the directions of the Board of Supervisors.

It will be seen, by reference to the report of the Superintendent, that the many repairs, etc., made necessary by the destruction of the Seminary property and the removal to Baton Rouge, have caused the contracting of a considerable debt. We deem it essential that the appropriations asked for by the Superintendent, which are as moderate as they could be to be of much service, should be promptly made. The delay in rendering available the munificent grant of land on the part of the Federal Government for an agricultural and mechanical college, is seriously detrimental to the educational interests of the State. We understand that the scrip is ready for delivery, and only awaits the action of the General Assembly for its disposition. The recommendation of the Superintendent on the subject, supported by sound arguments to which we refer, is well

worthy of adoption. The University, which in its present organization, embodies many of the features contemplated in the act of Congress, is undoubtedly the proper institution to receive a part of this fund, while the claims of the Straight University, as presented by the Superintendent, should not be overlooked.

The report of the Superintendent which gives minute information on every subject connected with the University, is herewith transmitted for the inspection of the General Assembly.

Respectfully submitted,

(Signed)

W. L. SANDFORD,

Vice President of the Board of Supervisors.

REPORT OF THE SUPERINTENDENT.

LOUISIANA STATE UNIVERSITY,
Baton Rouge, La., December 31, 1870.

To his Excellency Governor Warmoth,
ex officio President Board of Supervisors:

SIR—For another year, I have the honor to report the condition of this Institution.

GENERAL REMARKS.

Its annual work was never more useful and satisfactory, yet it was accomplished under circumstances of trial and difficulty, and at very great expense.

Aiming to be a university for a people, who before the war, generally believing that a school of high grade could not, for various reasons, more specious than real, ever be established among them, sent their sons *out of the State* to be educated; and who since the war, still clinging for the most part to their old ideas, are without the means, with few exceptions, of educating them either at home or abroad, yet burdened with debt, harassed with taxes, and constantly disturbed with politics; under such circumstances, this institution has had no field of promise to labor in, and whatever success it may have attained, it richly deserves! But that is not all. Homeless and houseless from the burning of its building in October, 1869, the guest of the Asylum for the Deaf and Dumb and the Blind, without room enough for its most necessary purposes, it has done not what it wished, but only the best it could. Yet it has been a school, and a good school too; it has fully restored (except the building) what was lost in the misfortune of fire; added largely to its academic materiel; graduated a noble class of eight (8) young men; gathered many facts for the physical history of Louisiana, and closed this year with the largest number of cadets that has ever been upon its rolls, and with one of the largest academic faculties in the South.

But I repeat that all this has not been done without leaving the Institution somewhat encumbered with debt. Liberal as has been

our patronage, under the circumstances, the expectations of the Board in regard to the number of private cadets were not realized. Our well known crowded condition, and the fear of yellow fever in September and October deterred many from coming. We had necessarily to incur much expense in making our temporary quarters adapted to our special purposes. These facts mainly, with the further loss of a heavy discount on the State warrants, during the last half of the year, have put us behind our available assets \$18,376 92.

But the University is now pretty well equipped in nearly every essential particular, so that its debt may be considered a small matter, easy perhaps to be wiped out during the coming year, even if we are not aided, as I hope we shall be, by a liberal appropriation from the Legislature for that purpose.

A glance at the property return will show a large amount of room and mess hall furniture, some of which is very superior and valuable, besides a good deal of general property, such as an institution of this kind must necessarily have. Reckoning these articles at their cost value, to say nothing of the academic appointments, library, apparatus, cabinets, text books, stationery, etc., which can not be worth less than \$60,000, and the financial condition of the university is by no means alarming.

The appropriations of last year by the Legislature were liberal, and believed at the time to be ample, to enable the school to recover from its great losses. Such, however, was not the case. Our losses proved to be even greater than we had supposed. The apparatus particularly being more injured than it seemed to be, and our expenses of every kind were greatly increased by our *provisional condition*, which made it necessary to do more or less building and refitting of one kind or another, which otherwise would not have been required. But we had not merely to recover the lost ground, not only to make our appointments of every kind equal to what were lost, but also to show that we were alive and ready for good work. In a word we had to advance—to add to our facilities for giving instruction. And that even the casual observer must be impressed with. As a school proper, the old seminary was never the equal of the university of to-day; and the long stride in advance of its former position has been taken when its resources were reduced, not only for the reasons just assigned, but also by an unexpected decline in its State funds, and by the sudden coming of that terrible scourge

the yellow fever, which will now and then be an unwelcome visitor to our State.

Then, briefly, the general condition of the university may be thus summed up: As an institution of learning it was never in as good condition as now, never before as well prepared for imparting thorough and extensive knowledge, but it is somewhat in debt. That debt, however, could, I hope, be easily overcome, even if an appropriation to cover that amount (\$18,376 92) were not made by the Legislature. Meanwhile the Institution will pursue the even tenor of its way, educating in the higher branches of learning as many of the youths of Louisiana and of the Southwest, as may enter its halls, and daily growing in its capacity to impart such education. It is now one of the best schools in the South, and there is no reason why it may not in a few years be the first. Only let the Legislature give it the Agricultural and Mechanical Land Fund, so that its schools of applied science may be greatly enlarged, and let the people of Louisiana but feel a deeper interest in their own home institutions, and who will dare set bounds to the prosperity of the State University—to its efficiency and usefulness, and to its dignity and importance? And if even now, without further help, it does not steadily grow year by year, the fault will be wholly with those intrusted with its management.

But much as it may in reason improve, although it may soon equal the best Southern institutions of learning, what reasonable hope is there that it can ever take rank with the leading schools of the Northern States?

A few great institutions in the South have done incalculable good through the ability and devotion of their comparatively small Faculties, their sound mode of instruction, and their rigid examinations. But in the appointments of their schools, and facilities for instruction, in every possible way, how immeasurably inferior is even that best of all the schools of the South, the University of Virginia, an institution in which, for its history and its usefulness, we all feel so much pride! Money and public spirit, a high appreciation of learning, and particularly an intense love of home institutions, have made Harvard and Yale, Cornell and Michigan what they are—vast store-houses of knowledge on almost every conceivable subject of thought—the wonder and pride of all America!

But we of the South are poor, and of public spirit we never had much, so that I fear our Southern colleges will continue to flounder in the slough of poverty and mediocrity, while our more liberal and enterprising brethren of the North, who, like as they build great cities, and factories, and railways, also pour out their money like water to found great colleges. Yes, active as the great North is in material progress, her people are equally alive to the education of her youth. Good schools are everywhere, and donations of hundreds of thousands of dollars made every year to single universities, by single individuals. But here in Louisiana, this land of great natural wealth, as fertile as Egypt of old, what common schools have we? And what colleges and universities really worthy the name? And I say this in humiliation and shame. I lay it to the fault of no particular man or party. I only call attention to the lamentable fact, as the first step to its correction. It would be so easy to found a good system of public schools in Louisiana, yet how difficult it seems! Let the same good sense that excludes religious sectarianism from its schools, also frown down upon making a school law or organization a *political* machine, and at once harmony, and a wholesome, healthy feeling would be the result. There the real work of establishing schools in Louisiana must begin. Until that solid foundation is reached, every effort made, and every dollar spent is in vain. And the system must continue to be a failure until the *people*, aroused to its importance, take the matter in hand, and politicians let it alone. Politics may elect a Governor, or a President, but no President or Governor dare administer his high office wholly in the interests of a party; and the officer who would play the politician in the school, is a curse to the public, and should be removed.

I have spoken rather fully on this point, because it concerns the welfare of this university so directly. Of the sixty-six applicants for admission this session, nine were rejected, because generally throughout the parishes there are no schools where a boy can be taught Arithmetic, English Grammar and Geography with anything like accuracy. And only think that one of those who could not pass our little examination for entrance, had been a *teacher*!

When there is a good vigorous system of public schools in Louisiana, not only will primary education be greatly improved, but a deeper interest will be felt in that higher education, which it is the design of this institution to supply. And, in general, nothing

can benefit the people of this State without this University feeling the good effects of it. Every school, high or low, that may be established, every church erected, every levee built, or railway constructed, every acre cleared or swamp reclaimed, every blade of corn or stalk of cotton, or sugar cane that may be grown, every factory or mine started, or commercial success in our great metropolis, and every honest, industrious immigrant that comes, all are but so many factors of our success, and may God speed them all!

Accompanying, please find the following special reports:

1. Roll of officers, cadets and employees, (A.)
2. Treasurer's report, (B.)
3. Return of property, (C.)
4. Return of library, (D.)
5. Return of apparatus; cabinets, etc., (E.)
6. Reports of topographical, geological and botanical surveys of Louisiana, (F.)

I must again be pardoned for saying that the time for rendering the annual report of the University is most unfortunate. The report should cover the annual *session*, not the calendar year, and should be rendered to the Board of Supervisors in the vacation, when all academic exercises being suspended, there is more time for getting up all the necessary information, preliminary to the report, and for examining thoroughly all the affairs of the institution. To undertake now, in the middle of the session, to render the annual reports, and particularly in the month of January, when the intermediate examinations are coming off, is most unwise. Besides the full and detailed annual report of the Superintendent made up to the end of June, a short supplemental report of the calendar year might be handed the board at a meeting in the latter part of December, when all necessary papers could be prepared for transmittal to the Legislature early in January. I hope this proposed change will be made.

COURSE OF STUDY.

The course of study is essentially the same as it was last year, the only changes of note being the formation of classes in botany, a select course of English literature, and Hebrew.

The Professor of Engineering having been relieved, at his own request, of the duties of commandant, is giving more attention than

formerly to drawing, and the chair of Natural Philosophy being again filled, more time is devoted to that branch.

It was expected that a beginning would be made in September towards the establishment of the chair of Agricultural Chemistry; but the learned professor, Dr. E. W. Hilgard, who was elected to that position, has not yet been able to assume the duties, and it now looks as if we shall lose him altogether. He could not leave the University of Mississippi without injury to that institution, and that he is unwilling to do. But chemistry, in its application to agriculture and the arts, we must have taught. It will be in the outset an expensive chair. Not less than fifteen thousand dollars will be needed to fit up the indispensable laboratory, with all its necessary fixtures, apparatus, etc., etc., and thirty thousand dollars might be well expended; but every science or branch of learning that throws light upon the labors of the farmer, particularly the sugar planter, who is a manufacturer as well as a tiller of the soil, must do great good in Louisiana, and this her leading school must do, cost what it may. It is a very difficult matter to find competent men for that chair. A few years since the University of Louisiana had one eminently fit, but she let the University of Virginia take him away. In a new school, as in a young State struggling for existence and position, *men* are everything; laws, rules and regulations of but little moment. A Hilgard or a Mallet would be worth to this institution scores of mediocre men; and I would earnestly beg the board to spare no pains or expense to secure such men. And here let me say that your salaries are hardly sufficient to secure first-rate men, although, at this time, I know you can not afford to pay them more. Teachers, next to preachers, are the worst paid the world over. It is what they expect, and they only ask that, while they are devoting their whole time to instructing the youth of the country and to the advancement of literature and science, their families may be kept from want, and enabled to move in that society in which their high calling places them. Now, no professor can maintain his family respectably on a salary of two thousand dollars a year on the banks of the lower Mississippi, when the very deck hands on the steamers are paid from forty to sixty dollars a month.

But if the University secures the agricultural and mechanical college fund, in whole or in part, as I have no doubt, it will have sufficient means always to secure the best talent, and to establish a very

extensive course of pure and applied science; and there are some additions to the course of study that ought to be made very soon, even if the fund alluded to is not intrusted to this institution. There should, by all means, be a course of lectures in physiology and anatomy, and better provision should be made for the systematic study of history. I know it was the intention of the executive committee to remedy the latter defect, but for reasons elsewhere given in this report, these views have not been carried out.

I am convinced, too, that no one professor can do justice to all the branches now embraced under the head of "Natural Philosophy." The applied mathematics and astronomy ought to be taken from that chair and made into a new professorship. Then there would be left with the present professor, natural and experimental philosophy proper, which, with his duties of commandant of cadets, would still keep him very busy.

I believe I can speak from some experience when I say that the true secret of efficient instruction is good teachers, able and conscientious, each restricted to one subject of study.

LIBRARY, APPARATUS AND CABINETS.

In these departments, so necessary to the well being of every well regulated college, and without which no institution of learning can be of much use, the University has added greatly to its stores during the past year. A large number of valuable books of reference has been purchased, mostly works on botany, geology, mineralogy, and applied science, also much choice reading of an historical and literary nature has been secured. The whole collection now exceeds seven thousand volumes, and, although it is a small library, we believe it to be the best in the South. Certainly, there is nothing like it in Louisiana, and while the University has as yet no liberal friends among the wealthy class, nor has it attracted the attention of the great philanthropists, it has nevertheless many well wishers among those whose ability to aid it is small in comparison with their public spirit; and they have, from time to time, donated a few good books to the library, and many fine specimens to the cabinets.

The board was advised in June last of the purchase of Wailes' cabinets of fossils, minerals, precious stones, shells (marine and fresh water), Indian relics, medals, coins, etc. That was the largest

stride the school ever took in making its scientific appointments useful and respectable. When there is sufficient room to display these immense collections, twenty years' labor of a scientific enthusiast, they will be invaluable to the scientific student. Besides these collections, Dr. Hopkins has obtained during his explorations many hundreds of specimens illustrative of the geology and mineralogy of Louisiana, the most valuable, perhaps, being a considerable portion of the remains of a zeuglodon, discovered near Montgomery, in Grant parish. And we are indebted to Colonel Cunningham, professor of natural philosophy, and to Doctors L. P. Yandell and S. S. Lyon, of Louisville, Kentucky, for a large and valuable collection of the pæozoic fossils, to be found at the falls of the Ohio and other points in the West. Also to Mrs. E. G. Boyd, for many specimens of the "drift," at Paducah, Kentucky; of silurian fossils from Minnesota, and a very large and handsome collection of agates and carnelians from Lake Superior and the vicinity of St. Paul; to George Kilbright, for many marine shells from the coast of Ireland; to Mr. Robinson, of this University, and to Dr. A. S. Helmick, of Terrebonne, for a miscellaneous collection of fossils, minerals, rocks, shells, etc.; and to Newton Richards, Esq., of New Orleans, for a fine collection of building and ornamental stones.

These are the principal donations to the cabinets. To the library, the chief gifts of note were a large collection of splendidly executed maps of the battle fields of Virginia, by General Sherman, and a fine bust of Peabody, presented by Mr. S. B. Robinson; to both of whom the thanks of the University are due.

For a full list of donors, in every department, please see accompanying paper (a). It will be seen that the cadets, as heretofore, are aiding us greatly. Neal, of Rapides, gave us a Sioux warrior's outfit; Deslattes, of St. James, brought a live rattle snake; LeBlanc, of Ascension, donated double-headed and four-legged chickens; Radesich, of Winn, minerals, fossils, etc.; and Bell, of Texas, came with a large ammonite. And thus, quietly, steadily and surely, the good work goes on.

I should also mention that, through the kindness of Dr. Joseph LeConte, of the University of California, a superior suite of specimens of the mineral rocks of the rich mining region has been secured, and will be very soon forwarded to this University; and it is the intention

of a friend of the institution to present it with a cast of the Megatherium, as soon as it can be prepared by Dr. Ward, of Rochester, New York. This cast, together with the remains of the mastodon, the megalonyx, and the zeuglodon, already here, will give us such a cabinet of the huge monsters of a former time as can be seen nowhere else south of the Potomac, and very few even of the great schools of the North can equal it.

Professor Featherman, who has labored so ably and zealously in charge of the botanical survey of the State, has already gotten up a very large and well preserved herbarium, which, increased by a few years more of labor, will be of great value to the University and reflect much honor upon Louisiana. Ours is essentially an agricultural country, and everything on its fertile bosom that is quickened into life by the genial rays of its semi-tropical sun, be it the magnolia or the pine, the apple or the orange, the sugar cane or stalk of wheat, should here have its history written and recorded.

Unfortunately for us at this time, we have no room suitable for the proper preservation and display of the herbarium. The best care possible, however, under the circumstances is being taken of it.

Mr. Featherman has it in private rooms, in Baton Rouge, where not only is the risk of fire great, but the students have but little access to it.

This is but one of several disadvantages and inconveniences arising from the crowded condition of our temporary quarters. We hope soon for relief.

The University is in possession of a large number of busts, paintings, chromo lithographs, engravings, etc.; the office, library, chapel, recitation rooms and mess hall being all ornamented with them. Education comes through the eye as well as the ear, and I think our quiet, silent pictures, yet so beautiful and instructive are doing much good. They belong to the library department, and a more beautiful and attractive public room than our library can not be found in Louisiana. Even the dining-room is handsomely adorned.

In connection with the library is a reading room, to which the students have access during the hours of recreation. There they find the British reviews, the best American scientific magazines, and the leading newspapers of the day. Most of the Louisiana editors

send their papers gratuitously, and many of the cadets, I am glad to say, are regular attendants upon this room, and equally avail themselves of all the advantages it affords.

It was found on unpacking and closely examining the apparatus, as saved from the fire, that much of it was damaged—either entirely useless or to be repaired at a considerable cost. Some of it has already been sent to New York and Boston for repair, and a good deal of new apparatus has been ordered, some of which has already arrived. But as many of the more delicate and necessary instruments are to be had only in Europe, the present unfortunate Franco-Prussian war disturbs even our humble, peaceful labors.

The fine set of mathematical models, in plaster, having been somewhat injured by rough handling at the fire, it was thought best to secure another set partly in wood; so that department is again well provided with such necessary aids to instruction. But the engineering school is in need of more instruments, models, etc., and by all means, as soon as possible, a room should be especially fitted up for drawing and for no other purpose. At present, our general want of room forbids that. To put our scientific chairs in proper condition in regard to apparatus, books of references, I think a special appropriation of \$10,000 necessary.

It would be useless to attempt to itemize what we want, suffice it to say, that much as we may already have to pride ourselves upon, we have hardly made a beginning in gathering around us what the best institutions of America and Europe consider absolutely indispensable for thoroughly imparting knowledge.

For the compliment of being recently shown through Columbia College, New York, and the opportunity of seeing how admirably filled up are the scientific departments of that great institution, I am under special obligations to its president, Dr. Barnard, and to professors Joy and Newberry.

And Gen. Sherman did Mr. Robinson and myself the honor to spend the greater part of two days in November last in showing us through the principal scientific bureaus and educational establishments in and about Washington. From which visits we gained much information, and we return thanks to our distinguished patron. Your Excellency will please remember that by your leave I was absent from November 19 to December 9.

ACADEMIC BOARD.

Professor E. P. Palmer having received a call as pastor to one of the churches in Mobile, and being anxious to devote his whole time to the ministry, has forwarded his resignation, to take effect December 31. His withdrawal having been approved by your Excellency, as President of the Board of Supervisors, Mr. Palmer has already left the University. Though doing what he believed to be a sacred duty, he took leave of our institution with profound regret, as shown in his letter to your Excellency, and in the same sad spirit, every one connected with the University, officers, cadets and employes, bid farewell to the good man and accomplished scholar. For three years he had been with us, and no one knew him but to love him and to respect him. It will be a difficult matter to fill his place, and as his classes are pretty well advanced, and the senior will be much burdened during the remainder of the session with their scientific studies, I would suggest that no Professor of Moral Philosophy be appointed till the meeting in June. Some of the duties of that chair can be assumed by the other professors. Colonel Lockett, on whose great worth and usefulness, in nearly every department, we have learned to depend in time of need and trouble, will teach the class in Logic. The class in Hebrew must, for the present, be suspended.

Colonel Edward Cunningham assumed the duties of Professor of Natural Philosophy and Commandant of Cadets in September, and the wisdom of the board in its several efforts to secure his services, is fully shown in the thorough and conscientious manner in which he has done all intrusted to his care.

As Dr. Hilgard found himself unable to accept the invitation of the board to become the Professor of Agriculture, Chemistry, Mineralogy and Geology, most of the duties of that chair are still performed by Dr. Hopkins, who, with his surgeoncy and other duties as professor, has, I think, too much to do. As early as practicable, therefore, it would be well to relieve him of a part of his burden. He is intensely interested in the geological survey of the State, and he has pursued it with an ability and zeal, which can not fail to reflect great credit upon himself, the University and the State. But who is worthy to take part of his labors, and to hold a position offered to Hilgard, is a very serious question, to be answered only after much deliberation.

Unfortunately, Mr. J. M. Garnett's application in September last, for re-entrance into the service of the University, could not be referred to the Executive Committee at Alexandria and answered for so long a time, that it became his duty to himself to wait no longer, but to accept the tendered presidency of St. John's College at Annapolis. And this was attended with another misfortune. Professor Hutson, well known to be one of the ablest literary scholars and writers in the South, was to be transferred to the newly formed chair of English Literature and History. Besides conducting the Greek classes, Mr. Hutson gives instruction in English literature and the Spanish language, and I would suggest the propriety of not disturbing his present status until the June meeting. The change of professors in the middle of a course of study is always more or less objectionable, and should be avoided, if possible.

Professor Featherman, in addition to his classes in French and German, gives instruction to a class in botany, which, with the botanical survey of the State, with which he is charged, takes up a great deal of his time, and I have no doubt it will soon be found necessary to create a separate professorship of botany.

The Superintendent has been able to do very little duty this session as professor, his usual academic work having been mostly done by Assistant Professor Grimes, Colonel Lockett and Professor McAuley; but during the remainder of the session he hopes to relieve those gentlemen of his own share of teaching. The duties of Superintendent are now so onerous, and year by year they must increase, that I do not think it possible, in justice to all parties interested, for the same person to hold that office and also to be an efficient professor; and particularly must that be the case, as long as he may be compelled to act as treasurer. No one can fill business and pecuniary responsibility of any great magnitude, and yet keep his mind in that calm and healthful tone, in which a teacher's should always be. I am convinced that no one can be Superintendent here and professor too; and as I am only a teacher, and wish to be nothing more, with no taste and less fitness for business and finance, I respectfully ask the Board to relieve me as early as practicable of the Superintendency, and to permit me to be simply professor of mathematics. At present I feel that I am not doing good service for the University, nor advancing in my profession; and apart from

my love for the institution, the salary is but a miserable pittance for all the labor and care and responsibility of my several offices.

In the selection of a Superintendent, I would beg leave most earnestly to call attention to the necessity of making choice from the class of professors and of those who have had experience in the management of similar institutions; otherwise the office might degenerate into a political one, and some party-trickster or caterer to the public will might be put in position, and then to the dogs the school would go.

The amount of time consumed by the classes in book-keeping, writing and arithmetic, and in the proper care of the library, has become such, that, together with Mr. Robinson's delicate health, it has been found necessary to restrict his duties almost entirely to those of instructor and librarian; in fact, heretofore he has been given entirely too much to do. While on a trip North last summer, with a view to both health and business, he visited several of the leading colleges and universities there, and obtained much valuable information, which I hope may be of great use to our own school. In this connection, I would beg leave to say that I think it indispensably necessary that one or more of our professors, particularly of the departments of experimental and applied science, should visit the higher universities of the more northern States. In nothing more than in facilities for learning are we of the South behind the advanced progress of this day. An occasional visit to Europe would be of still more service. I know many persons think such inspections of little use; but they are generally those, who, claiming to be intelligent, never read a book, or enter a cabinet or museum; and such, whatever their pretensions, I respectfully submit, have no right to an opinion. The oldest and best institutions of learning on this continent find it necessary to have their representatives continually abroad; and this infant university must too rub against and ally itself with the great moving world of letters and science, or come to nothing.

I feel that I would not be doing my duty, were I to fail to call particular attention to the efficient and faithful performance of duty by Professor McAuley and Assistant Professor Grimes.

Mr. McAuley has long been in the service of the institution, and has probably done in his quiet, patient, thorough way, more academic

duty than any other professor. Upon Mr. Grimes (a graduate of the university), has devolved mainly, this session, the instruction of the mathematical classes, and he has done it well.

Besides the regular professors and the usual course of study, a beginning has been made in having monthly lectures delivered by able scholars not connected with the University. These lectures can not fail to give fresh life and vigor to the mind of the earnest student, and to refine the tone, and heighten the character of the institution.

CADETS

We close the year with two hundred and seventeen matriculates, one hundred and twenty-eight State and eighty-nine private cadets, being the largest number ever in attendance during any one year. Yet several causes have existed to injure our patronage: the erroneous impression that the school was badly crippled by the destruction of its college building at Alexandria, and unable to impart efficient instruction, the well known crowded condition of the building we now occupy, the fear of yellow fever last fall, political excitement and disturbances, and the low price of cotton, which has deprived many of the means of educating their sons.

The real increase in our numbers is due chiefly to the increase of the number of State cadets, and some of that class of students, even, for one or more of the above reasons, have not reported up to this date; but I have assurances that nearly all the absentees of that class will be at the institution in January.

How long politics will be allowed to disturb any enterprise or branch of industry in Louisiana, the good sense of the people must answer. As to the crowded condition of this building, too many young men in one room for either health or study, and not space or facilities sufficient for academic or business purposes, we can only say that the Legislature must give the University the temporary use of the whole of this Asylum building, or provide other quarters for us, or disband the school. It is not right, in any sense, to continue as we are. We are not only in no condition to do good work, as a University ought to do, but we are at the same time a nuisance to others—to the Deaf and Dumb Asylum, which has so kindly given us shelter.

In August last your Excellency authorized the honorable Board of Administrators of the Asylum to procure other quarters for the

inmates of the Asylum, and to give the University temporary occupation of the whole of this building; but with the removal of the blind pupils, in accordance with an act of the Legislature of last session, it was hoped that, during the few months that intervened till the reassembling of the Legislature, the ill consequences of both institutions being kept together in the same house would not be too grievous to be borne. I am sure both parties have suffered greatly in consequence. Loss of patronage, injustice to those already under our charge, and greatly increased expenses from want of proper facilities for conducting economically our domestic affairs, have been our share of the bad policy of not acting on the wise suggestion of your Excellency.

In our boarding and laundry departments alone, the extra expense entailed has been sufficient to pay the rent of a building sufficient for the purposes of the Institution for the Deaf and Dumb; but it is proper for me to state that I believe I alone am responsible for the administrators of that Institution not acting in accordance with the expressed wish of the Governor, to give the University the entire building. In so advising at that time, I thought I was right; now I see my error. But I hope nothing will be done for the relief of the University, unless it is absolutely certain that the deaf *mutes* will not suffer thereby. And here I ought to speak of the uniform kindness and consideration with which we have been treated by the officers and administrators of the asylum. They have given up everything to us that they could spare. Even the blind were removed to make room for us, and they are ready also to find another house for the deaf and dumb. And I think they will say that we have made their self imposed burden as light as possible. How two large parties, so totally different in their natures, object and modes of discipline, with no barriers of wood or stone between them, could for so long a time live together under the same roof, with no injurious or even unpleasant consequences of a personal nature, is truly wonderful. It speaks well for the good order of both establishments, and especially do we claim that it is a clear refutation of the common belief that the Southwestern boy is hard of restraint. For this good behavior on the part of the corps of cadets, there are several reasons: chiefly the strong hand of military discipline, but it is in a great measure due to the peculiar composition of the corps itself, being about one-third Creoles, whose gentle, cour-

teous manners, and keen sense of honor are a check upon the usual rough, thoughtless and impetuous ways of the American boys; while upon the other hand, the latter is at the same time instilling some of his good common sense, energy and enterprise into the Creoles. And what is done here will hold good outside the walls of the University, and very soon the educated and refined native Louisianian will be the superior type of man on this continent.

We consider the number of our cadets small, and so it is. Louisiana could and should do much better for us. But let us compare figures with some of the leading colleges and universities in the country by means of the accompanying table (b), compiled chiefly by Dr. Barnard, President of Columbia College, New York. It will be seen that this institution is actually educating in the department of arts a larger number of youths for Louisiana than any of those schools, except Harvard, is doing for their respective States, and that with their proportion of students from other States, our number would be very large.

There is, according to Dr. Barnard, in New England and New York about one student at college to every two thousand inhabitants, and over the whole United States about one student to every two thousand five hundred of the white population. Now, as Louisiana has only about four hundred thousand white inhabitants, it would seem that this Institution is educating, *pro rata*, for Louisiana nearly as many young men as *all* the colleges in New England and New York together educate for those States; and that Louisiana, through her people and Legislature, is really doing considerably more to give her sons a collegiate education than the States generally in the Union.

But notwithstanding this exhibit our people could do much better for us; or rather they should allow us to do much better for them. Please see accompanying table, (B): From which you will observe that the great centers of population, intelligence and wealth in Louisiana are doing least for us. New Orleans and Baton Rouge give us very little *private* support; from Shreveport, Monroe, Alexandria, Opelousas, Natchitoches, Donaldsonville, Plaquemine and Carrollton, it is absolutely nothing; and from some of the wealthiest and most populous parishes, we have no *private* patronage. Now, this should not be. If the university is unworthy of their support, they can very easily soon make it what it

ought to be, so that the public spirit of those communities may be more heartily and effectually enlisted in favor of this State institution.

Many of our best and most intelligent citizens were reared elsewhere, and the sacred ties of blood and early associations make it often desirable that they should send their children back to their own old homes, to become familiar with the scenes of their own childhood, and to be educated where they themselves were. Such considerations are sentimental, springing spontaneously from the heart, and against which no reason can prevail. Time alone can obliterate them.

But there is one inducement to patronage held out by this institution which has not been sufficiently appreciated by the public, *the low fees*. Usually, colleges announce board and tuition for a session of nine or ten months about two hundred and fifty or three hundred dollars. But what does that mean? Nothing in particular; and certainly it does not include bedding and room furniture, washing and mending, and servants' attendance, fuel and lights, blacking and soap, text books and stationery; and often even room rent is *extra*, to say nothing of the extra modern languages, etc.; and if the student is sick, he is subjected to heavy expense for medical attendance! *Not so here*. All those expenses, and every other possible expense, except clothing, are three hundred and fifty dollars per session of ten months! I venture the assertion that the expense incurred by most young men, who have been sent out of Louisiana to be educated, is about twice the amount necessary here.

I have before me now a copy of the ledger account of a young Louisianaian at a Virginia College last year. The total amount paid the institution for its regular charges was, for one year, six hundred and sixty-seven dollars. Now taking into count the traveling expenses to and from Virginia, and what the student says he spent necessarily, outside the walls of the college, the total expense was over one thousand dollars, and that sum of money would have maintained him here nearly three years. So much for the *economy* of sending boys and young men *out of Louisiana* to be educated. But that is not the worst. Let us trace the policy a little further. Even if it were as cheap, let us take the Louisiana boy educated North or East, and one educated in this institution, and compare their chances of success in life here in Louisiana. Both, say, go into business in New Orleans. What does the one educated out of

the State know of Louisiana and her people outside of his own little neighborhood? To whom can he refer, as to a brother in Caddo, or Madison, or Feliciana, or St. Landry? While the graduate from here has had, for four years, school mates from every parish; and the history of his State, physical, political and personal, he is daily acquiring in spite of himself. The one begins life and business in his *native* State a stranger, knowing nobody in it and nothing about it; the other has already a large acquaintance and an established character which his fortunate neighbor can only acquire at great cost of time and money. Virginia and Carolina, Massachusetts and New York, have all a strong State pride, which in time of need, is a tower of strength; and it has been inculcated in no way more than by the fact that the youth of those States are educated together in their own State schools. And the citizen of Louisiana who *can* educate his son in Louisiana schools, and does it *not*, is not, in my humble judgment, doing his part by either his State or his child. As we love best our own blood and family and home, so should we love our parish and State, and great country, better than any other, and do all in our power to intensify that love.

Many students go from the far South, to enjoy the colder and more bracing air of a higher latitude. May there not, on the other hand, be some reason to expect that the States north of us will soon look to this institution as a proper one, to which they may send such of their youths as may not be able to stand their own severe winters? While our mild climate is improving their health, we would hope also to benefit their minds.

This, I think, is an important matter, well worthy the attention of the invalid student of the North, and of this institution, as a question of patronage; and looking to the inevitable, the early absorption of the West Indies, Mexico and Central America into the Union, it would seem but natural that many youths from those countries, with the view of acquiring not only a collegiate education, but a better knowledge of the American people, their laws, customs and government, would attend American colleges; and why not this one particularly, on account of its proximity, and because New Orleans must always command much, if not the most of their trade? Already do we see the beginning of the good work: one of our best cadets, studious and exemplary in his conduct, is C. F. Weir, of

British Honduras. During the past year, catalogues and circulars in large quantities, mostly in Spanish, were sent to those countries, and it is my intention to continue to do so.

It may be a matter of surprise that our patronage from Texas has not been larger; but there are several good colleges in that State, and her primary schools are generally much better than those of Louisiana; so that really we should be glad to know that the young Texian has very little reason or excuse for leaving his own State to become an educated gentleman.

BENEFICIARY CADETS.

The Legislature at its last session having modified the law so that each parish is entitled to two (2) beneficiary cadets, the number from New Orleans remaining twenty (20), as before, the total number now, including one additional from St. Landry, who holds over under the old law, is one hundred and twenty-seven; of this number one hundred and eleven have been in attendance since September, and seven could not pass the examination for entrance. Several having been detained from one cause or another, chiefly fear of yellow fever in the fall, have notified me that they will report in January. But there are a few parishes whose police juries for some reason unknown to me, seem slow to make their appointments. They are Caddo, Catahoula, Cameron, Plaquemines, St. Charles, St. Tammany, and Vermilion. A detailed list (d) of all vacancies of six months' standing, is herewith presented. It is the duty of the Board, by the recent law, to fill them from the State at large; but believing that the Board would prefer to select from those parishes, I have also presented the names of young men resident therein, whom I believe to be worthy to receive the State's beneficence.

The beneficiaries are now, as ever before, our best young men, superior as students, and in deportment. At the examination for graduation, in June, they bore off the palm, and I can not tire in their praise. All the graduates of that class of cadets have thus far faithfully done their duty as teachers *in the State*; and some of them, I am proud to say, occupy very high and responsible positions. Samuel O. McCormick is President of Mount Lebanon University, and T. B. Edwards and S. H. Lewis are joint principals of the Military High School in New Orleans, one of the most successful and best conducted private schools in that large city, if we are to judge by their

large patronage and the good words of praise that come up from all quarters about them. The Board of Supervisors should be the more gratified at the success of these young gentlemen, when it is known that they were driven into opposition to the old established schools of the city by the low salaries they were offered for their services as assistant teachers. Rather than work for forty dollars per month without board, they appealed to the intelligence of New Orleans for a liberal and respectable support, and they appealed not in vain. And rather than any of our cadet graduates should teach for a compensation so inadequate, I say let them turn deck hands on the river, where they will receive bigger pay with board! The old notion that anybody can preach, and anybody can teach, should pass away. That is a false economy which begins in the church and the schoolhouse; and when old teachers attempt it, whatever be their own pecuniary condition, with our poor but deserving young beneficiaries who are compelled by law to be teachers, may they reap their just reward, as they have done in the case of Edwards and Lewis. Their little corps of seventy-five cadets is neatly uniformed and regularly drilled; and besides the learning they impart, I hope they are also sowing the seeds of good order and discipline, in which the youths of our country are generally so sadly deficient. Beginning at home with disobedience and want of respect for parental authority, there is little hope of their becoming good citizens; unless their ideas of propriety are corrected at school, there is little hope of their becoming good citizens.

Besides the beneficiary graduates, several of those who left the University before graduation, are also engaged in teaching, and I have reason to believe that they are doing good work. I should not fail to say that George K. Pratt, one of the graduates from among the private cadets, is now in efficient charge of the Episcopal Parochial School, New Orleans.

I hope to see the day when the teachers of the public schools in Louisiana will be chiefly the alumni of this institution. Not only that; I hope to see them gracing the legislative halls, the judicial bench and the sacred ministry, the most successful planters, merchants and mechanics, and in all the elements of a good citizen, the foremost men of the land. And when that day comes, their old teacher and superintendent will have reaped his reward. He can then rest

from his labors, and thank his God that He has permitted him to be of some service to his fellow-men.

I am grieved to announce the death of one of our most promising cadets, George E. Pitts, of the parish of Richland. He died of typhoid fever, with intercurrent pneumonia, on the twenty-seventh day of November last, after ten days' illness. I was absent at the time, but Colonel Cunningham, who was then in charge of the school, and Dr. Hopkins, the surgeon, were unremitting in their attentions, and everything possible for his relief was done. He was one of the very best, in every respect, of the new cadets of this session; and it may be a long while before his parish can send so deserving a young man. His relatives and friends have received the condolence of the University.

For remarks concerning graduation, resignation and dismissal of cadets, please see accompanying roll of officers and cadets (A).

DISCIPLINE.

The discipline of the corps is better than formerly. During the year we have succeeded in uniforming the cadets in neat West Point gray cloth, and their appearance is very handsome, which conduces much to the pride of the soldier, and good order. They have, too, been drilled a good deal in infantry, squad, company and battalion drill, by Colonels Lockett and Cunningham; and, a friend of the institution having presented it with a field battery of four (4) guns, two bronze James rifles and two ten-pounder Parrotts, with all necessary equipments, Colonel Lockett has also drilled the cadets somewhat in artillery drill. But I regret to say that we are still without the muskets. With that additional help, our discipline would be still more improved. I had been in hopes that small arms could be had from the State; but, failing in that, I ordered the Remington musket from a house in New York, in August last, but the order could not then be filled on account of the great demand for arms in Europe. And pecuniarily, it is well for us that our hopes were frustrated, for, disappointed in the extent of our private patronage, and in the amount to be realized from State warrants, we could not have afforded to purchase arms. But, whatever may prevent or delay the restoration of the musket, it is now what this military school most needs, next to a house over its head. I can never recall the fact that we have not arms without a feeling of

humiliation and mortification; and I beg leave here to say that if, during the coming year, the State can not furnish them, nor the institution afford to make itself respectable by purchasing, I shall make an effort to procure small arms myself. With the help of the musket, I can see no reason why our discipline should not become very good.

Under "Discipline," I think I should speak of the recreations of the school, for what innocently tends to please and amuse young people, keeps them out of mischief. It has been our constant effort to make the institution itself as attractive as possible, and to create as many innocent recreations for the cadets as might not conflict or interfere with study. Hence, very frequently, they have been permitted to invite young ladies from Baton Rouge and vicinity to "hops," conducted immediately under the supervision of the officers of the University. The hops serve a double purpose; it not only gives the cadet the benefit of the fine society of Baton Rouge, than which a more intelligent and refined community does not exist in the State, but he is better pleased and satisfied, and consequently pursues his studies with more diligence and success.

And here, too, if I can be pardoned for speaking of a sacred subject in such a connection, I am glad to say that our religious exercises also help our discipline.

There is preaching in the chapel every Sabbath by one of the several ministers of the Gospel of Baton Rouge, and prayers are daily held by Professors Cunningham and McAuley; also, for the benefit of the Catholic students, Mr. McAuley has, every Sabbath, a class of religious instruction; upon all of which exercises the attendance is generally good. And when it is borne in mind that it is entirely voluntary, that every young man here who attends church or any religious service, does so of his own accord and from his own conviction of its necessity, the fact that a large number of our cadets are habitual attendants, not only upon the services here, but in Baton Rouge, speaks well for them.

I would respectfully ask a special vote of thanks from the Board of Supervisors to the following named ministers of the Gospel in Baton Rouge, who have kindly officiated at the University since September last: Rev. Dr. Henry N. Strong, of the Episcopal church; Rev. Messrs. Trippett and Lane, of the Methodist church, and Rev. Mr. Palmer, of the Presbyterian church.

TOPOGRAPHICAL, GEOLOGICAL AND BOTANICAL SURVEYS.

The detailed reports (F) of the professors engaged in these surveys accompany this report. They have labored very assiduously, and doing great good to the State. Each has traveled hundreds of miles, and visited many portions of the State, and a few years more of such work will accumulate an immense deal of information regarding the physical features of Louisiana. Colonel Lockett had expected to lay the ground work this year of the map of Louisiana, but his reasons for not doing so seem good. So little, comparatively, could now be done, and as the map is designed to be the crowning work of his labors, it is hardly worth while to begin it until he is possessed of all the necessary information, which can not be until he has carefully gone over the whole State. The topography of Louisiana is very difficult; and being so different from that of the other States of the Union, geographers and map makers generally have up to this time known very little of its face, as the Generals commanding and engineer officers in the late war found out to their sorrow. So very unreliable for military purposes were all the maps then to be found, that General Kirby Smith directed his engineers to systematically survey the whole of West Louisiana within his lines. For two years several parties of topographical engineers, under the supervision of Major R. M. Venable, late of this institution, were constantly in the field, and a vast amount of very accurate information was obtained and mapped down; but, unfortunately, very few traces of it can be found. At the close of the war the Engineer train was plundered near Henderson, Texas, and the valuable labors of years were lost in a few minutes; and General Smith's fine map of Louisiana, the only one that has up to this time been worthy of the name can not now be found. At our request, General Sherman has had the Engineer office at Washington examined thoroughly for it, or for the data from which it was made, but all in vain. There is, perhaps, a vain hope that it may yet be found; it would save Colonel Lockett a great deal of time and labor.

Dr. Hopkins thinks it necessary to explore the rivers and bayous at their lowest stage of water, and to do so effectively, he should have a small steam tug, which could be had at no considerable cost.

Mr. Featherman's botanical operations were confined to middle

and lower Louisiana. During the coming year he will visit the northern part of the State. While on the Gulf coast he gave some attention to the collection and determination of the shells there to be found. Not less than two years more will be required to complete these surveys, and I would recommend that the Board of Supervisors again call upon the Legislature for an appropriation of six thousand dollars for the necessary expenses for the coming year.

AGRICULTURAL AND MECHANICAL COLLEGE FUND.

As this fund or scrip will no doubt be finally disposed of at the coming session of the Legislature, the Board of Supervisors should, I think, spare no effort to secure it. I can not conceive how any further arguments can be adduced in favor of this institution than may be found in the previous annual reports. To obtain it was the dream of the old Seminary for years, and now the University can only repeat the old, stale inquiry: what other institution in Louisiana is as capable of using the fund to proper advantage? Most of the Northern States have selected one or more of their colleges, already established, as the recipients of this fund, and the reasons in their case also apply to ours, namely, that a certainty is always better than a doubt. Those familiar with the history of colleges know how precarious is their existence in their infancy. They may have means, patronage and strong faculties, yet like the infant with all the care and attention that affection and affluence can give them, the chances are in favor of their death. In proof of which see the many failures to build up colleges all over our country. Now, this dangerous period of infancy this institution has passed, under trials, perhaps, that no other American college ever encountered. Would it be wise, then, to pass by this already established school that has most of the requisite chairs already in successful operation, to found a new college organization to use this educational boon of the Federal Government, with the chances of success against it, and which, by no possibility, could give instruction to a single scholar under two or three years until the buildings were erected? And it must be further borne in mind that no part of the funds derived from the sale of that scrip can be used by law in the erection of buildings. Now the buildings of this University at Alexandria must be restored or other quarters provided; and for the Legislature to go to heavy

expense to erect also other buildings for the agricultural and mechanical college or colleges, in view of all the facts presented, would, I respectfully submit, be no part of wisdom; nor can I believe it will be done. But if this institution is deemed unworthy to use this fund, still let some good use be made of it at once. It speaks badly for Louisiana that she has been so slow in making use of this precious gift of the United States—one which if properly applied, can not fail to be of great benefit in improving our agriculture and mechanic arts, and in ennobling those callings. It is true, that at our home proper, in Rapides, suitable facilities for practical instruction in the mechanic arts could not be supplied except at heavy expense, and very likely that portion of the fund had better be expended in New Orleans, where alone in Louisiana such facilities can be readily had. If that policy be the Legislature's line of action, I would respectfully suggest the fitness of the Straight University to receive one-half the fund. That institution seems to be ably conducted, and like its prototype, the Howard University, at Washington, is doing a positive good, and deserves to be fostered.

A plan somewhat in detail was presented last year of the curriculum of the agricultural and mechanical college, if added to this institution; but until the will of the Legislature, as to the disposition to be made of it, is known, I presume it will be unnecessary to say anything further on that subject.

BOARDING AND LAUNDRY DEPARTMENTS.

These departments are not in satisfactory condition, and have not been since we left our old quarters in Rapides. Our provisional condition, with its make shift arrangements, is the cause. The mess hall and kitchen are on the second floor, with no conveniences for carrying up provisions, wood and water, or removing slops; hence labor and expense are greatly increased. Nor can we, as at Alexandria, board all employes. Here it would be very inconvenient, and the annoyance, owing to the peculiar situation of the dining room and kitchen, would cost more in bother and confusion than the expense saved in money. The mess hall furniture and ware have generally been kept in neat condition; but the quality of the food was not as good as it should have been. It has been indifferent in quality, badly cooked, and badly served, as Mr. Rob-

inson was in ill health during most of the year, and could not, therefore, be of his usual efficiency in inspecting and keeping in good order the boarding department. We had to rely mainly on the faithful old colored steward, Leigh Watkins, to whom we are much indebted that our fare was no worse. But the chances are decidedly in favor of an improvement next year, for we are trying to make a radical change in cooks and waiters; and any change will be for the better.

For laundry purposes there have been rented a house and lot near by. It has very few conveniences, and the washing is costing us more heavily than formerly; but it is now better done, owing to the skillful care of Auguste Schneider, who has it in immediate charge. All the laundry employees board themselves, which also increases its cost.

Should the Legislature deem it wise to turn this whole (asylum) building over to the University, the increased facilities thus given would enable us greatly to cheapen our board and washing; but if no change is made in the present quarters of the University, the institution must raise its charges of maintenance very materially.

IMPROVEMENTS, REPAIRS, REFITTING, ETC.

For whatever improvements and repairs done to this asylum building and other Houses rented by the University, please see accompanying detailed statement (e). Much work had to be done, and much expense incurred, to put a great building like this—not altogether suitable for our purpose, nor indeed in good repair—in good condition for all the necessary uses of our school, and keep it generally in good order. Large rooms had to be divided, and halls cut off by partitions, much brick flooring taken up and replaced with neatly dressed plank, substantial glass-casing and shelves put up in the library, museum, philosophical and chemical rooms, besides a good deal of painting, plastering, whitewashing and paving, and several large store rooms in the basement were made at considerable expense of digging and removing the earth, cutting and fitting doors, and cisterns and well had to be cleaned and repaired; so that our portion of the building and grounds is in far better order than when we came here.

We have done but little repair to the roof, which leaks in many places. It is of slate, not well put on, I think; and I fear it will cost much to put it in good order.

If the University is to remain here for any length of time, I would suggest the propriety, if not the necessity, of renewing the fixtures and lighting the building with gas. I do not think it would cost much to put it in proper condition for gas, and the fixtures once in order, the expense of lights would be less than now, all danger of fire and death from the use of coal oil avoided, and as a matter of military discipline and cleanliness, it would be very desirable. I will, too, further give it as my opinion that this large and costly building has no safety against fire. It has but little water, with no facilities for getting it to the roof. The University has a night watch, who has access to any part of the building held by ourselves, and also keeps an eye to the safety of the whole of it; but the building is so large, with so many rooms, that fire might get under good headway before discovery. If so, the chances are, I believe, that the building would be destroyed. There ought to be tanks or cisterns in the roof, two more large cisterns in the yard and a fire engine or large force pump and hose. The building ought also to be insured.

The beautiful grounds should be enclosed with a substantial ornamental iron railing, so that altogether the Administrators of the Asylum ought to have not less than \$20,000 to put this fine public property in every respect in good and safe condition.

The University house furniture of every kind is now more in quantity and of better quality than that at Alexandria. This superior refitting, which we believe very desirable, and if not now absolutely necessary, will be money saved eventually, has together with the improvements and repairs above mentioned cost the institution a great deal and burdens it with debt.

PROPERTY NEAR ALEXANDRIA.

Captain O. K. Hawley is still in charge of the old seminary property near Alexandria. In July last I visited it myself, and was pleased with the evident attention he is giving it. He occupies one of the professor's houses with his own family, and had good tenants in all the other houses; but since the death of Judge Kelso, in November last, I am not sure that he has yet succeeded in putting the house which the Judge occupied in good hands. About the only damage the property has sustained has been the burning of fences

from the great pine woods fire, the little pilfering about the ruins of the college building, and the cutting and stealing of firewood, which it is impossible for any one to prevent. As the Legislature will no doubt take some action at the coming session on the question of rebuilding, it will perhaps be best to defer for the present, any consideration of what had best be done with the debris of the burnt building, much of which is valuable.

In respect to the repairing, rebuilding and re-establishment of the University, at its old home in the pine woods of Rapides, I can add nothing to what was said at length in the report of last year, except that time has only strengthened my convictions then, and made me more anxious to get back, where, after admitting all that may be said in praise of this and other locations, the yellow fever never comes to kill our precious charges, and to make us lose heavily in patronage and money, and where military discipline can best be preserved, without which discipline this University, in my humble opinion, would soon be destroyed. It is that discipline which has made it what it is, and its cadets among the most manly and well behaved young men in America. On this score we challenge comparison. We have good discipline here in Baton Rouge. Lately when politics, as usual, had done its dirty work, and a disgraceful and bloody riot ensued; when all was excitement, and noise and confusion in that usually quiet city, not a cadet of this institution was at the scene or upon the streets. But such discipline can only be maintained with great severity, which is unnecessary in the pine woods of Rapides.

But the main question now is where shall the University stay until it is rebuilt. If some suitable building can be had elsewhere we ought to be removed from here, where we are now in the way of the proper working of the institution for the deaf and dumb. For my part I know of no such building, while I think it would be no difficult matter to provide very good temporary quarters for the deaf and dumb here in Baton Rouge. In that, however, I may be mistaken, and I hope that no action will be taken for this removal which does not fully meet the approval of the honorable Board of Administrators, and particularly the sanction of its able and experienced Superintendent, who, I am convinced, best knows what is necessary for the proper maintenance and instruction of that class of persons. The whole of this building, or equivalent room else-

where, is absolutely necessary for the purposes of the University; but injustice must not be done the asylum, and rather than this should be, I know the Board of Supervision and the Legislature would disband the University. Let no action then be taken for our relief which would at all jeopardize their well-being.

FINANCES.

The accompanying statement of the treasurer (B) gives fully in detail the pecuniary condition of the University. For reasons already given, our regular current and incidental expenses have been much greater, and the receipts much less, than we had expected, so that the institution now owes \$18,376 92 more than its available cash assets. But considering the cost value of provisions, text books, stationery and other necessary stores for regular consumption, now in hand, amounting to \$5,256 38, we are still behind-hand in the large sum of \$13,120 54.

Although the sale of warrants early in the year was at the high figures of ninety-six and one-fourth cents, yet those falling due in the last half of the year commanded so low a price, that I declined for a long time to sell at all, and then, necessity compelling, I sold no more than could possibly be avoided. For the large amount now on pledge for loans, we hope soon to realize much more than present rates.

Nothing can be more unsatisfactory and precarious than to be compelled to meet heavy regular expenses with the proceeds of fluctuating warrants, which frequently fall so low that to be compelled to sell them is almost equivalent to closing the University.

Since our debts, as above given, is the necessary result of our great misfortune by fire, near Alexandria, and has been incurred in the effort to save the University from destruction, and to keep it in a prosperous and vigorous condition, notwithstanding the disadvantageous circumstances attending it in its temporary home. I think it not amiss to pray the Legislature for relief for that and other necessary purposes. I hope, therefore, that the board of supervisors will ask for the following appropriations:

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|--|----------|
| 1. General relief of present liabilities..... | \$20,000 |
| 2. Additional apparatus, etc..... | 10,000 |
| 3. Expenses of topographical, geological and botanical
surveys..... | 6,000 |
| 4. Traveling expenses of board of supervisors..... | 1,000 |

The expenses of the beneficiary cadets for the coming year have already been provided for, and so no doubt in the general appropriation bill will be the annuity.

CONCLUSION.

Although begging pardon for this long report with its many repetitions, which might perhaps have better been avoided, and the much incidental matter, which I could have omitted altogether, I must tax your Excellency's patience, and that of the members of the Board, a few moments longer to ask the Board of Supervisors to thank the following gentlemen for showing great interest in the success of the University, and aiding it in every way in their power:

His Excellency the Governor; Hon. Mr. Conway, Superintendent Public Education; Senators Campbell, Egan, Futch and Lynch; Representatives McMillen, Lott, Lange, Kent, Morey, Haskell, Dewees, and the honorable Speaker Mr. Carr; Swarbrick & Co., James A. Gresham, William S. Pike, Walter Pugh, Judge E. North Cullum and Captain W. C. Black of New Orleans; the honorable Board of Administrators and the Superintendent of this Deaf and Dumb Asylum, and Hart & Hebert, James McVay and Moliere Lange of Baton Rouge.

But the University is really, I am glad to say, indebted to so many for acts of kindness and assistance, that it seems almost invidious to mention any particular friends.

Yet our greatest and best Friend, as man is apt to do, we think of last.

Let us thank Him that we have a university, with a large number of Christian youths receiving instruction, and humbly beseech Him always to have this institution in His holy keeping.

Respectfully submitted,

D. F. BOYD,
Superintendent.

ROLL OF THE OFFICERS AND CADETS
OF THE
LOUISIANA STATE UNIVERSITY.

SESSION OF 1870 AND 1871.

OFFICERS.

DAVID F. BOYD, Superintendent and Treasurer.
EDWARD CUNNINGHAM, Commandant of Cadets.
F. V. HOPKINS, Surgeon.
REV. J. B. DELACROIX, Roman Catholic Chaplin.
REV. E. P. PALMER, Protestant Chaplin.
S. B. ROBINSON, Business Agent.

ACADEMIC BOARD.

DAVID F. BOYD, Professor of Mathematics.
SAMUEL H. LOCKETT, Professor of Engineering and Instructor in Artillery Tactics.
JOHN P. MCAULEY, Professor of Latin.
CHARLES W. HUDSON, Professor of Greek and Instructor in English Literature.
AMERICUS FEATHERMAN, Professor of Modern Languages and Instructor in Botany.
EDWARD P. PALMER, Professor of Moral and Mental Philosophy and Instructor in Hebrew.
FREDERICK V. HOPKINS, Professor of Chemistry.
EDWARD CUNNINGHAM, Professor of Natural Philosophy and Instructor in Infantry Tactics.
W. A. SEAY, Lecturer on Constitutional and International Law.

T. L. GRIMES, Assistant Professor of Mathematics.

S. B. ROBINSON, Instructor in Penmanship and Book-keeping, and Librarian.

G. D. TARTTON, Assistant Instructor in Latin.

THOMAS PUGH, Assistant Instructor in Latin.

A. A. GUNBY, Assistant Instructor in English.

J. P. ELMORE, Assistant Instructor in English.

J. L. DESLATTES, Assistant Instructor in French.

S. L. GUYOL, Assistant Instructor in French.

ROLL OF CADETS.

NO.	NAMES.	CLASS.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
1	Aché, Frank Sylvester.	Third.	Assumption parish, La.	September 7, 1868.	
2	Adams, James David.	Optional.	Tyler, Texas.	September 10, 1870.	
3	Allen, Ben Franklin.	Optional.	Vernon, Jackson parish, La.	November 21, 1870.	
4	Ashley, William Frank.	Optional.	Bonner, Jackson parish, La.	January 22, 1870.	
5	Badley, Elmore.	Optional.	East Baton Rouge parish, La.	March 9, 1870.	
6	Badley, Henry.	Preparatory.	East Baton Rouge parish, La.	March 9, 1870.	
7	Bailey, Walter.	Third.	New Orleans, La.	September 7, 1868.	
8	Barnard, Alfred.	Fourth.	Franklin, St. Mary parish, La.	September 6, 1869.	
9	Barnes, Charles McCormick.	Fourth.	St. Joseph, Tensas parish, La.	September 15, 1870.	
10	Barrow, Alexander.	Preparatory.	West Baton Rouge parish, La.	September 6, 1870.	
11	Beatty, Henry.	Fourth.	Pointe Coupee parish, La.	September 7, 1867.	Resigned June 30, 1870.
12	Beatty, Lewis.	Fourth.	New Orleans, La.	October 6, 1869.	Resigned June 30, 1870.
13	Bell, Bryan Marsh.	Optional.	Tyler, Texas.	September 18, 1866.	Resigned June 30, 1870.
14	Berger, John.	Optional.	Terrebonne parish, La.	September 22, 1868.	
15	Berger, Robert.	St. First.	Caddo parish, La.	September 10, 1869.	Resigned June 30, 1870.
16	Billingale, James T.	Fourth.	Morehouse parish, La.	November 17, 1869.	Resigned June 30, 1870.
17	Blackburn, George F.	Preparatory.	Carroll parish, La.	March 1, 1870.	
18	Bogel, William Woodworth.	Third.	East Baton Rouge parish, La.	October 6, 1869.	
19	Bourgeois, Lewis.	Fourth.	St. James parish, La.	October 13, 1868.	
20	Boyd, Thomas Duckett.	Optional.	Virginia.	September 5, 1870.	
21	Boyd, Washington.	Fourth.	St. Martin parish, La.	December 5, 1870.	
22	Brea, Joseph Ray.	Fourth.	New Orleans, La.	September 2, 1867.	Resigned June 30, 1870.
23	Brugier, Louis Amadee.	Optional.	Ascension parish, La.	June 8, 1870.	
24	Brian, William Sands.	Optional.	East Feliciana parish, La.	September 6, 1868.	
25	Brooks, William Allen.	Third.	New Orleans, La.	September 14, 1868.	
26	Brosnan, Daniel Madison.	Second.	New Orleans, La.	September 18, 1868.	
27	Brown, William Simon.	First.	Terrebonne parish, La.	October 1, 1870.	
28	Burgess, Basil William.	Fourth.	East Baton Rouge parish, La.	September 10, 1870.	
29	Butler, William Lorick.	Optional.	Tyler, Texas.	September 9, 1870.	
30	Caffery, Charles Duval.	Preparatory.	Vermilionville, La.	November 24, 1868.	Resigned June 30, 1870.
31	Callham, David.	Preparatory.	Avoyelles parish, La.	September 6, 1869.	Resigned June 30, 1870.
32	Calvit, Munford.	Preparatory.	Rapides parish, La.		

ROLL OF CADETS—Continued

NO.	NAMES.	CLASS.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
33	Campbell, James Beverly...	Fourth.	New Iberia, La.	September 5, 1870.	
34	Campbell, Thomas Bartlett.	Second.	Jefferson parish, La.	October 6, 1868.	
35	Carroll, Arthur Benton.	Optional	Mansfield.	September 5, 1870.	
36	Caulhoun, John.	Preparatory.	Natchitoches parish, La.	October 9, 1868.	
37	Cavanagh, James.	Preparatory.	Rapides parish, La.	September 5, 1870.	
38	Chaffo, Christopher Charles.	Optional.	Claiborne parish, La.	September 3, 1869.	Resigned June 30, 1870.
39	Co'bert, Augustus.	Fourth.	Bienville parish, La.	September 4, 1869.	
40	Combs, William Lewis.	Optional.	Bossier parish, La.	September 9, 1870.	
41	Cullum, Edward Anderson.	Third.	New Orleans, La.	September 6, 1869.	
42	Cullum, William Mason.	Optional.	New Orleans, La.	September 5, 1870.	
43	Curry, Joseph.	Fourth.	Natchez, Miss.	November 14, 1870.	
44	Davidson, James L.	Preparatory.	Livingson parish, La.	January 5, 1870.	Dismissed June 31, 1870.
45	Davidson John Thomas.	Preparatory.	Rapides parish, La.	September 8, 1869.	Resigned June 30, 1870.
46	Davis, Isaac Ivey.	Fourth.	Caldwell parish, La.	February 14, 1869.	
47	Deslattes, John Louis.	First.	St. James parish, La.	May 5, 1867.	
48	Dinkgrave, John H.	Fourth.	Ouachita parish, La.	September 16, 1868.	Resigned September, 1870.
49	Dubose, James Gordon.	Optional.	East Feliciana parish, La.	January 4, 1870.	Resigned June 30, 1870.
50	Ducote, Cleophas Joseph.	First.	Avoyelles parish, La.	September 3, 1866.	
51	Ducros, Edward Octave.	First.	St. Bernard parish, La.	April 10, 1867.	
52	Dupuy, Thomas B. R.	Preparatory.	Iberville parish, La.	January 4, 1870.	Dismissed February 3, 1870.
53	Dunbar, Edward Merriek.	Second.	East Feliciana parish, La.	September 7, 1868.	
54	Easton, Warren.	First.	New Orleans, La.	August 29, 1867.	Resigned September 13, 1870.
55	Edwards, Ben Franklin.	Third.	Avoyelles parish, La.	September 2, 1867.	
56	Edwards, Daniel.	Fourth.	Washington parish, La.	April 11, 1870.	
57	Edwards, Harry Lacey.	Third.	Iberville parish, La.	June 25, 1869.	
58	Ellis, Stephen R.	Fourth.	Washington parish, La.	September 5, 1870.	
59	Elmore, James Percival.	First.	Livingson parish, La.	September 3, 1866.	
60	England, George W.	Third.	New Orleans, La.	September 7, 1868.	Resigned June 30, 1870.
61	Evans, Wesley Crompton.	Second.	New Orleans, La.	September 7, 1868.	
62	Fanzle Max.	Fourth.	Union parish, La.	October 1, 1868.	
63	Ferguson, James J.	Second.	New Orleans, La.	September 6, 1869.	Dismissed March 7, 1870.
64	Ferguson, Robert Gallier.	First.	New Orleans, La.	November 5, 1869.	

ROLL OF CADETS—Continued.

65	Frith, Charles Edward	Optional	Avoyelles parish, La.	November 2, 1870.	
66	Gaianne, Dennis F.	Optional	Natchitoches, La.	March 20, 1869.	Resigned May 19, 1870.
67	Gallon, Zachary Taylor	First	Natchitoches, La.	January 8, 1867.	
68	Geren, James Preston	Second	Claiborne parish, La.	September 3, 1866.	Appointment expired June 30, 1870.
69	Goelt, Joseph G.	Fourth	New Orleans, La.	September 3, 1869.	Resigned June 30, 1870.
70	Goldthwaite, Frank E.	Fourth	New Orleans, La.	September 5, 1870.	
71	Gray, James Meredith	Preparatory	Caldwell parish, La.	September 16, 1870.	Absent, sick.
72	Gunby, Andrew Augustus	First	Claiborne parish, La.	November 30, 1867.	
73	Guyol, Sidney Louis	First	New Orleans, La.	September 8, 1867.	
74	Hadnot, William G.	Preparatory	Grant parish, La.	September 6, 1869.	Resigned June 30, 1870.
75	Hadnot, John Pierce	Preparatory	Grant parish, La.	September 6, 1869.	Resigned June 30, 1870.
76	Hadnot, Luke Huggins	Preparatory	Grant parish, La.	September 6, 1869.	Resigned January 16, 1870.
77	Hadnot, William Smeede	Preparatory	Grant parish, La.	September 5, 1869.	Resigned June 30, 1870.
78	Hart, John Daly	Fourth	Concordia parish, La.	September 25, 1870.	
79	Harvey, Henry A.	Optional	New Orleans, La.	November 21, 1869.	Resigned April 29, 1870.
80	Harrill, Joseph C.	Optional	Natchitoches parish, La.	February 6, 1870.	Resigned June 30, 1870.
81	Haskill, Frank Elias	Fourth	Calcasieu parish, La.	September 30, 1869.	
82	Howard, Alexander L.	Optional	St. Landry parish, La.	September 16, 1870.	
83	Hawkins, Grifton T.	Second	St. Landry parish, La.	February 2, 1868.	
84	Hayden, George Mixon	First	Washington parish, La.	May 28, 1868.	
85	Heath, John Perkins	Fourth	East Feliciana parish, La.	August 30, 1869.	Graduated June 29, 1870.
86	Hebert, Alfred	Fourth	West Baton Rouge parish, La.	September 14, 1869.	
87	Hebert, Olga Paul	Third	Madison parish, La.	October 6, 1869.	
88	Hill, John J.	Third	West Baton Rouge parish, La.	August 30, 1869.	
89	Hingle, Robert	Second	Flaquemines parish, La.	September 2, 1867.	
90	Hines John Calhoun	Preparatory	Ouachita parish, La.	September 22, 1870.	
91	Hollingsworth, George W.	First	Bienville parish, La.	September 4, 1869.	
92	Hogue, George	Fourth	Livingston parish, La.	September 5, 1870.	
93	Hunt, Edward T.	Third	New Orleans, La.	September 19, 1869.	
94	Hutchinson, William Joseph	Fourth	Washington parish, La.	September 10, 1870.	
95	Hymel, Franklin O.	Fourth	Lafourche parish, La.	September 6, 1869.	
96	Hynson, Pirtard H.	Fourth	Rapides parish, La.	September 6, 1869.	Resigned June 30, 1870.
97	Ives, Christopher E.	Fourth	Jackson parish, La.	September 5, 1870.	
98	Jackson, Simon T.	Fourth	Carroll parish, La.	October 14, 1869.	

ROLL OF CADETS—Continued

NO.	NAMES.	CLASS.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
33	Campbell, James Beverly.	Fourth.	New Iberia, La.	September 5, 1870.	
34	Campbell, Thomas Bartlett.	Second.	Jefferson parish, La.	October 6, 1868.	
35	Carruth, Arthur Benton.	Optional.	Mansfield.	September 5, 1870.	
36	Caughlin, John.	Preparatory.	Natchitoches parish, La.	October 9, 1868.	
37	Cavanagh, James.	Preparatory.	Rapides parish, La.	September 5, 1870.	Resigned June 30, 1870.
38	Chafe, Christopher Charles.	Optional.	Claiborne parish, La.	September 3, 1869.	
39	Corbett, Augustus.	Fourth.	Bienville parish, La.	September 4, 1869.	
40	Combs, William Lewis.	Optional.	Bossier parish, La.	September 9, 1870.	
41	Cullum, Edward Anderson.	Third.	New Orleans, La.	September 6, 1869.	
42	Cullum, William Mason.	Optional.	New Orleans, La.	September 5, 1870.	
43	Curry, Joseph.	Fourth.	Natchez, Miss.	November 14, 1870.	
44	Davidson, James L.	Preparatory.	Livingston parish, La.	January 5, 1870.	Dismissed June 31, 1870.
45	Davidson, John Thomas.	Preparatory.	Rapides parish, La.	September 8, 1869.	Resigned June 30, 1870.
46	Davis, Isaac Ivoy.	Fourth.	Caldwell parish, La.	February 14, 1869.	
47	Deslattes, John Louis.	First.	St. James parish, La.	May 5, 1867.	
48	Dinkgrave, John H.	Fourth.	Ouachita parish, La.	September 16, 1868.	Resigned September, 1870.
49	Dubose, James Gordon.	Optional.	East Feliciana parish, La.	January 4, 1870.	Resigned June 30, 1870.
50	Ducde, Cleophas Joseph.	First.	Avozelles parish, La.	September 3, 1866.	
51	Ducros, Edward Octave.	First.	Iberville parish, La.	April 10, 1867.	
52	Dupuy, Thomas B. R.	Preparatory.	Iberville parish, La.	January 4, 1870.	Dismissed February 3, 1870.
53	Dunbar, Edward Morricks.	Second.	East Feliciana parish, La.	September 7, 1868.	
54	Easton, Warren.	First.	New Orleans, La.	August 29, 1867.	
55	Edwarda, Ben Franklin.	Third.	Avozelles parish, La.	September 2, 1867.	Resigned September 12, 1870.
56	Edwards, Daniel.	Fourth.	Washington parish, La.	April 11, 1870.	
57	Edwards, Harry Lacey.	Third.	Iberville parish, La.	June 25, 1869.	
58	Ellis, Stephen R.	Fourth.	Washington parish, La.	September 5, 1870.	
59	Elmore, James Perceval.	First.	Livingston parish, La.	September 3, 1866.	
60	England, George W.	Third.	New Orleans, La.	September 7, 1868.	Resigned June 30, 1870.
61	Evans, Wesley Crumpton.	Second.	New Orleans, La.	September 7, 1868.	
62	Feazle Max.	Second.	Union parish, La.	October 1, 1868.	
63	Ferguson, James J.	Fourth.	New Orleans, La.	September 6, 1869.	Dismissed March 7, 1870.
64	Ferguson, Robert Gallier.	First.	New Orleans, La.	November 5, 1869.	

ROLL OF CADETS—Continued.

65	Frith, Charles Edward	Optional	Avoyelles parish, La.	November 2, 1870.	Resigned May 19, 1870.
66	Gaiennie, Dennis F.	Optional	Natchitoches, La.	March 20, 1869	
67	Gallon, Zachary Taylor	First	Natchitoches, La.	January 8, 1867	Appointment expired June 30, 1870.
68	Geren, James Preston	Second	Claiborne parish, La.	September 3, 1869	Resigned June 30, 1870.
69	Gieslet, Joseph G.	Fourth	New Orleans, La.	September 3, 1869	
70	Golthwaite, Frank E.	Fourth	New Orleans, La.	September 5, 1870.	
71	Gray, James Meredith	Preparatory	Caldwell parish, La.	September 16, 1870.	Absent, sick.
72	Gunby, Andrew Augustus	First	Claiborne parish, La.	November 30, 1867.	
73	Guyot, Sidney Louis	First	New Orleans, La.	September 3, 1867.	Resigned June 30, 1870.
74	Hadnot, William G.	Preparatory	Grant parish, La.	September 6, 1869	Resigned June 30, 1870.
75	Hadnot, John Pierce	Preparatory	Grant parish, La.	September 6, 1869	Resigned January 16, 1870.
76	Hadnot, Luke Hoggins	Preparatory	Grant parish, La.	September 6, 1869	Resigned June 30, 1870.
77	Hadnot, William Smeede	Preparatory	Grant parish, La.	September 5, 1869	
78	Hart, John Daly	Fourth	Concordia parish, La.	September 25, 1870.	
79	Harvey, Henry A.	Optional	New Orleans, La.	November 21, 1869.	Resigned April 22, 1870.
80	Harrill, Joseph C.	Optional	Natchitoches parish, La.	February 6, 1870	Resigned June 30, 1870.
81	Haskill, Frank Elias	Fourth	Calcasieu parish, La.	September 30, 1869	
82	Howard, Alexander L.	Optional	St. Landry parish, La.	September 16, 1870.	
83	Hawkins, Gritton T.	Second	St. Landry parish, La.	September 2, 1868	
84	Hayden, George Mixon	First	Washington parish, La.	May 28, 1868	Graduated June 29, 1870.
85	Heath, John Perkins	Fourth	East Feliciana parish, La.	August 30, 1869	
86	Hebert, Alfred	Fourth	West Baton Rouge parish, La.	September 14, 1869.	
87	Hebert, Olga Paul	Third	Madison parish, La.	October 6, 1869.	
88	Hill, John J.	Third	West Baton Rouge parish, La.	August 30, 1869	
89	Hingle, Robert	Second	Plaquemines parish, La.	September 2, 1867.	
90	Hines John Calhoun	Preparatory	Quachita parish, La.	September 22, 1870.	
91	Hollingsworth, George W.	First	Bienville parish, La.	September 4, 1869.	
92	Hogue, George	Fourth	Livingston parish, La.	September 5, 1870.	
93	Hunt, Edward T.	Third	New Orleans, La.	September 19, 1869.	
94	Hutchinson, William Joseph	Fourth	Washington parish, La.	September 10, 1870.	
95	Hymel, Franklin O.	Fourth	Lafourche parish, La.	September 6, 1869.	
96	Hynson, Pinard H.	Fourth	Rapides parish, La.	September 6, 1869.	Resigned June 30, 1870.
97	Ives, Christopher E.	Fourth	Jackson parish, La.	September 5, 1870.	
98	Jackson, Simon T.	Fourth	Carroll parish, La.	October 14, 1869	

ROLL OF CADETS—Continued.

NO.	NAMES.	CLASS.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
99	Jacobs, Andrew Jay.	Preparatory.	Richland parish, La.	September 5, 1870.	
100	James, Joseph.	Optional.	Rapides parish, La.	January 6, 1870...	Resigned June 30, 1870.
101	James, Meredith N.	Optional.	Rapides parish, La.	September 6, 1869.	Resigned June 30, 1870.
102	Joffron, Pierre E.	Fourth.	Pointe Coupee parish, La.	September 6, 1869.	
103	Jones, Philip Hough.	Fourth.	East Feliciana parish, La.	January 3, 1870...	
104	Jorda, Mitchell Joseph.	Preparatory.	St Bernard parish, La.	September 14, 1870.	
105	Kernon, Mumford.	Fourth.	Tangipahoa, La.	September 5, 1870.	
106	Keplinger, Walter S.	Preparatory.	N-w Orleans, La.	December 5, 1870.	
107	Kerr, Frank M.	Engineering.	New Iberia, La.	November 24, 1868.	
108	Kile, Joseph Henry.	Fourth.	Natchitoches parish, La.	December 17, 1869.	
109	Knobloch, Gustave A.	First.	La ourche parish, La.	September 2, 1867.	
110	Knox, Robert Smith.	Optional.	East Baton Rouge parish, La.	January 4, 1870...	Resigned June 30, 1870.
111	Kratz, Rudolph.	Fourth.	New Orleans, La.	September 6, 1869.	Appointed from St. Tammany.
112	Laiche, Emile.	Preparatory.	St James parish, La.	October 6, 1870...	
113	Leavel, Lafayette.	Fourth.	Morehouse parish, La.	September 5, 1870.	
114	Le Blanc, Samuel T.	Fourth.	Ascension parish, La.	May 9, 1868.	
115	Lee, John Alexander.	Fourth.	Union parish, La.	September 22, 1870.	
116	Lewis, Curtis Clay.	Second.	Tensas parish, La.	December 17, 1867.	
117	Lewis, John H.	Preparatory.	Orleans right bank, La.	December 7, 1869.	Resigned June 30, 1870.
118	Lewis, Samuel Henry.	First.	East Baton Rouge parish, La.	September 3, 1868.	Graduated June 30, 1870.
119	Lowry, John A.	Second.	Bossier parish, La.	September 3, 1868.	Term of appointment expired June 30, 1870.
120	Maglone, Clay B.	Fourth.	East Baton Rouge parish, La.	September 7, 1870.	
121	Mandall, Alfred A.	Optional.	New Orleans, La.	June 10, 1869.	
122	Manum, Joel S.	Preparatory.	East Baton Rouge parish, La.	September 6, 1870.	Dismissed November 3, 1870.
123	Martin, Robert.	Fourth.	St. Martin's parish, La.	September 6, 1869.	
124	Marshall, George.	Optional.	Rapides parish, La.	September 4, 1869.	Resigned June 3, 1870.
125	Mather, Louis J.	Third.	Orleans right bank, La.	June 3, 1867.	Dismissed January 3, 1870.
126	Matthey, Julius.	Second.	New Orleans, La.	August 27, 1867...	Dismissed January 31, 1870.
127	Melancon, Edmund A.	Preparatory.	New Orleans, La.	December 5, 1870.	
128	Menge, Joseph.	First.	Plaquemines parish, La.	September 3, 1866.	Graduated June 29, 1870.
129	Massey, William O.	Second.	West Feliciana parish, La.	September 3, 1866.	

ROLL OF CADETS—Continued.

130 McCallum, William.....	Fourth.....	Terbonne parish, La.....	September 14, 1870.	Graduated June 29, 1870.
131 McCormick, Samuel C.....	First.....	Union parish, La.....	October 13, 1866.....	Resigned May 1, 1870.
132 McDonald, G. W.....	Optional.....	Chabornie parish, La.....	September 3, 1869.....	
133 McMay, Andrew.....	Optional.....	Jackson parish, La.....	September 5, 1870.....	
134 Mills, John Campbell.....	Preparatory.....	Lafayette parish, La.....	September 9, 1870.....	
135 Neal, Frank H.....	Fourth.....	Rapides parish, La.....	September 5, 1860.....	Resigned June 30, 1870.
136 Newport, Thomas J.....	Optional.....	East Feliciana parish, La.....	June 3, 1870.....	Dismissed February 3, 1870.
137 Norwood, David J.....	Second.....	East Feliciana parish, La.....	August 31, 1869.....	
138 Oliver, Charles H.....	Fourth.....	Orleans parish, La.....	December 8, 1869.....	
139 Parker, Charles C.....	Fourth.....	Carroll parish, La.....	August 31, 1866.....	
140 Parkinson, John R.....	Third.....	St. Mary parish, La.....	September 2, 1867.....	
141 Parmele, Fred. F.....	First.....	New Orleans, La.....	May 2, 1868.....	
142 Pasquier, Claudius M.....	Fourth.....	Assumption parish, La.....	.....
143 Perkins, William C.....	Second.....	East Feliciana parish, La.....	August 30, 1869.....	
144 Perkins, James Lewis.....	Third.....	East Feliciana parish, La.....	October 6, 1869.....	
145 Peyroux, Placide L.....	Third.....	New Orleans, La.....	September 6, 1868.....	
146 Pipes, Martin Luther.....	Second.....	De Soto parish, La.....	January 6, 1869.....	
147 Pitts, George E.....	Preparatory.....	Richland parish, La.....	September 5, 1870.....	Died November 21, 1870.
148 Posey, William T.....	Preparatory.....	Baton Rouge, La.....	September 5, 1870.....	Graduated June 29, 1870.
149 Pratt, George King.....	First.....	St. Landry parish, La.....	March 8, 1865.....	
150 Pratt, Joel Eugene.....	Optional.....	East Baton Rouge parish, La.....	January 3, 1870.....	
151 Price, Frederick W.....	Fourth.....	Jackson parish, La.....	September 11, 1870.....	
152 Proffitt, James H.....	Fourth.....	Iberville parish, La.....	November 25, 1869.....	Dismissed October 29, 1870.
153 Pugh, Lewellyn.....	Fourth.....	New Orleans, La.....	September 5, 1870.....	
154 Pugh, Thomas.....	First.....	New Orleans, La.....	January 5, 1866.....	
155 Radenech, Luke Peter.....	Engineering.....	Winn parish, La.....	September 3, 1866.....	
156 Ransdell John.....	First.....	Rapides parish, La.....	January 4, 1868.....	Graduated June 29, 1870.
157 Hanson, Norbert.....	Second.....	St. Charles parish, La.....	March 30, 1867.....	
158 Rawlings, Richard T.....	Fourth.....	Catahoula parish, La.....	September 23, 1868.....	Resigned June 30, 1870.
159 Redlick, Henry B.....	Fourth.....	New Orleans, La.....	October 12, 1869.....	
160 Reid, Alexander L.....	Preparatory.....	Calcasieu parish, La.....	September 5, 1870.....	
161 Riddle, William S.....	Preparatory.....	New Orleans, La.....	December 5, 1870.....	
162 Ringgold, Jacob H.....	Second.....	Rapides parish, La.....	June 21, 1870.....	Resigned June 30, 1870.
163 Roberts, Norton R.....	First.....	Rapides parish, La.....	October 16, 1865.....	Graduated June 29, 1870.

ROLL OF CADETS—Continued.

NO.	NAMES.	CLASS.	RESIDENCE.	DATE OF ENTRANCE.	REMARKS.
164	Boberia, James Joseph	Fourth	Rapides parish, La.	September 6, 1869.	
165	Robertson, Samuel M.	Fourth	East Baton Rouge parish, La.	September 5, 1870.	
166	Eggers, Russell C.	Preparatory	Rapides parish, La.	September 5, 1870.	
167	Beggilio, Ransom R.	Preparatory	East Feliciana parish, La.	December 6, 1870.	Dismissed December 13, 1870.
168	Eulen, William	Optional	New Orleans, La.	November 4, 1869.	Dismissed January 31, 1870.
169	Schnieder, Phillip	Third	New Orleans, La.	September 7, 1868.	
170	Scott, Thomas B.	Fourth	Madison parish, La.	November 24, 1869.	
171	Soranton, George W.	Fourth	Vermilion parish, La.	November 9, 1868.	
172	Shanks, William C.	Preparatory	Iberville parish, La.	January 4, 1870.	
173	Sibley, John T.	Second	New Orleans, La.	September 7, 1868.	
174	Skipwith, Wyndham R.	Fourth	East Feliciana parish, La.	September 5, 1870.	
175	Smith, John	Second	Booster parish, La.	April 9, 1868.	
176	Smith, Joseph Davis	Second	West Feliciana parish, La.	November 20, 1867.	
177	Smith, William J.	Preparatory	Rapides parish, La.	September 14, 1869.	Dismissed January 15, 1870.
178	Stafford, Leroy	Optional	Rapides parish, La.	October 13, 1869.	Resigned June 30, 1870.
179	Stacy, John	Fourth	Mississippi	September 6, 1869.	Resigned June 30, 1870.
180	Stoker, Charles W.	Preparatory	Rapides parish.	November 23, 1869.	Dismissed May 15, 1870.
181	Street, Gustave C.	Engineering	New Orleans, La.	September 2, 1870.	
182	Strickland, Alexander M.	Fourth	St. Helena parish, La.	September 6, 1869.	
183	Stuart, Frank P.	Fourth	New Orleans, La.	September 2, 1870.	
184	Stuart, Robert S.	First	New Orleans, La.	June 16, 1869.	Resigned June 30, 1870.
185	Sutherland, Edgar N.	First	New Orleans, La.	September 2, 1869.	
186	Tanner, Lodovick	Optional	De Soto parish, La.	September 2, 1867.	
187	Talton, Adolphus C.	Preparatory	Rapides parish, La.	September 20, 1869.	Resigned February 12, 1870.
188	Talton, Green Duke	First	Claborne parish, La.	September 5, 1870.	
189	Tarleton, Leo	Fourth	St. Landry parish, La.	December 22, 1867.	
190	Tassin, George Henry	Third	Iberia parish, La.	September 4, 1869.	
191	Teasin, Lewis Manuel	Fourth	St. John Baptist parish, La.	September 7, 1868.	
192	Tezada, William F.	Preparatory	Rapides parish, La.	September 6, 1869.	Resigned June 30, 1870.
193	Thompson, Alexander J.	Third	Rapides parish, La.	September 6, 1869.	Resigned June 30, 1870.
194	Thompson, Charles J.	Second	St. Helena parish, La.	September 6, 1869.	
196	Thompson, James J.	Fourth	St. Landry parish, La.	October 18, 1868.	
			St. Landry parish, La.	September 6, 1870.	

ROLL OF CADETS—Continued.

196	Triche, Earnest.....	Preparatory.	St. John Baptist parish, La.....	September 5, 1870.
197	Van Hook, William M.....	Optional.	Jackson parish, La.....	September 8, 1870.
198	Veazie, Edward P.....	Third.....	St. Landry parish, La.....	September 25, 1867.
199	Vinson, Robert B.....	Fourth.....	Onachita parish, La.....	September 12, 1870.
200	Viguerie, Frank C.....	Fourth.....	Terrebonne parish, La.....	October 11, 1869...
201	Waddill, Abel Knox.....	Third.....	East Baton Rouge parish, La.....	September 3, 1867.
202	Wadsworth, W. O.....	Preparatory.	Washington parish, La.....	September 5, 1870.
203	Walker, Edward M.....	Fourth.....	St. Mary parish, La.....	May 6, 1870.....
204	Weaver, Frank C.....	Third.....	New Orleans, La.....	September 6, 1869.
205	Welch, Samuel W.....	Fourth.....	Concordia parish, La.....	September 8, 1868.
206	Whetstone, Ashbury H.....	Fourth.....	Morehouse parish, La.....	September 5, 1870.
207	White, T. Frank.....	Preparatory.	Catahoula parish, La.....	September 22, 1870.
208	White, Isaiah Booker.....	Second.....	East Feliciana parish, La.....	August 30, 1869...
209	Whiting, Francis S.....	Optional.	Texas.....	November 2, 1869.
210	Wickliff, Charles A.....	Fourth.....	Kentucky.....	November 1, 1870.
211	Weit, Charles F.....	Optional.	British Honduras.....	October 1, 1870.
212	Wilson, Thomas Peach.....	Second.....	St. Mary parish, La.....	August 31, 1868...
213	Willit, William E.....	Preparatory.	New Orleans, La.....	December 5, 1870..
214	Williams, George G.....	Optional.	Caldwell parish, La.....	September 16, 1870.
215	Wolf, Joseph L.....	Third.....	Baton Rouge, La.....	September 6, 1869.
216	Wood, Fred Dixon.....	Fourth.....	East Feliciana parish, La.....	September 5, 1870.
217	Zein, Louis.....	Fourth.....	Franklin parish, La.....	September 7, 1868.

(Signed)

D. F. BOYD, Superintendent.

(b.)

Statement Showing the Undergraduates in the School of Arts in attendance at some of the Principal Colleges in the United States, during the year 1869-70.

COLLEGE.	STATE.	STUDENTS FROM THAT STATE.	STUDENTS FROM OTHER STATES.	STUDENTS OF ARTS.	POPULATION OF THE STATE IN 1870.
Bowdoin.....	Maine.....	118	14	132	628,719
Dartmouth.....	New Hampshire.....	119	170	289	317,710
Harvard.....	Massachusetts.....	372	191	563	1,457,351
Amherst.....	Massachusetts.....	118	137	255	1,457,351
Brown.....	Rhode Island.....	81	78	159	217,356
Yale.....	Connecticut.....	146	372	518	537,417
Columbia.....	New York.....	114	15	129	4,370,846
Cornell (1868 and 1869).....	New York.....	87	34	121	4,370,816
Princeton.....	New Jersey.....	104	220	324	903,044
Dickinson.....	Pennsylvania.....	46	39	85	3,511,543
St. John's.....	Maryland.....	.....	.....	37	790,095
University of Virginia.....	Virginia.....	117	74	191	1,211,442
Washington College.....	Virginia.....	75	266	341	1,211,442
Virginia Military Institute.....	Virginia.....	136	201	337	1,211,442
University of South Carolina.....	South Carolina.....	.....	.....	65	705,789
Spring Hill College.....	Alabama.....	.....	.....	105	996,175
University of Georgia.....	Georgia.....	.....	.....	162	1,117,832
University of Mississippi.....	Mississippi.....	160	27	187	842,056
Baylor.....	Texas.....	.....	.....	90	795,500
Cumberland.....	Tennessee.....	.....	.....	105	1,225,937
Kentucky University.....	Kentucky.....	.....	.....	167	1,320,407
Kenyon.....	Ohio.....	.....	.....	70	2,652,302
Indiana Asbury.....	Indiana.....	.....	.....	169	1,655,675
Indiana University.....	Indiana.....	.....	.....	166	1,655,675
University of Michigan.....	Michigan.....	.....	.....	172	1,184,653
University of Wisconsin.....	Wisconsin.....	.....	.....	81	1,055,001
Iowa University.....	Iowa.....	.....	.....	35	1,181,359
Louisiana State University.....	Louisiana.....	166	4	170	734,420

NOTE—Tables (a), (c), and (d) omitted in publication.



26: 4 - 1.1.1

ANNUAL REPORT

OF

PROF. D. F. BOYD,

Superintendent Louisiana State University,

FOR THE YEAR 1871.

TO THE

GOVERNOR OF THE STATE OF LOUISIANA.

NEW ORLEANS:

PRINTED AT THE REPUBLICAN OFFICE, 94 CAMP STREET.

1872.

Report of D. F. Boyd, Superintendent of Louisiana State University, for the year 1871.

ANNUAL REPORT

OF

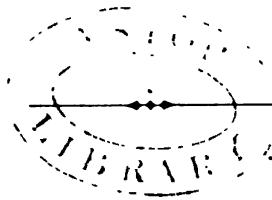
D. F. BOYD,

Superintendent Louisiana State University,

FOR THE YEAR 1871.

TO THE

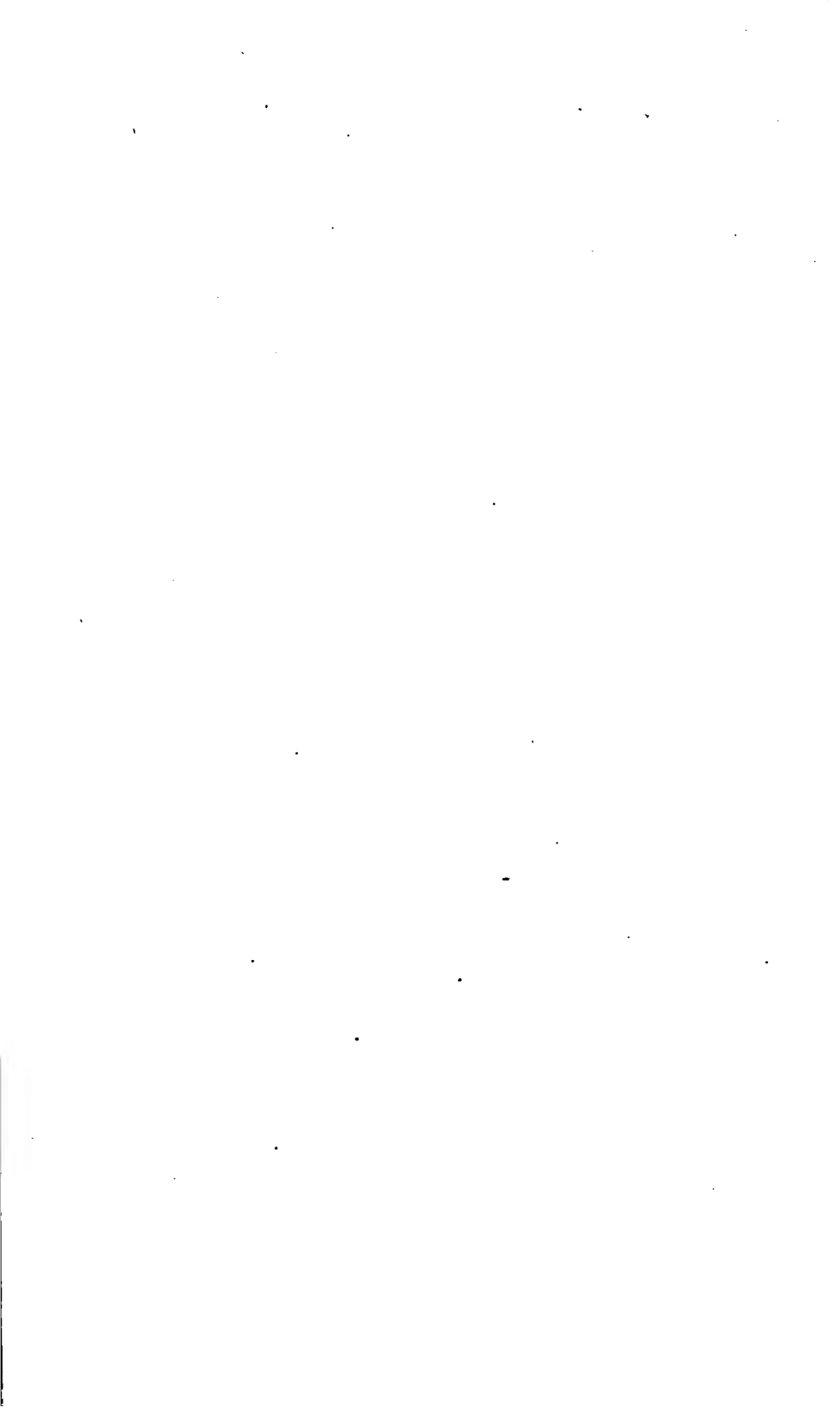
GOVERNOR OF THE STATE OF LOUISIANA.



NEW ORLEANS: *g H 1112*

PRINTED AT THE REPUBLICAN OFFICE, 24 CAMP STREET.

1872.



REPORT.

LOUISIANA STATE UNIVERSITY,
BATON ROUGE, La., December 21, 1871.

To His Excellency H. C. Warmoth, Governor of Louisiana and *ex-officio* President of the Board of Supervisors, New Orleans, La. :

SIR—The general condition of this institution is *bad*, yet not wholly bad ; in some respects it is prosperous.

It is very unfortunate in—

1. The pecuniary embarrassments.
2. The incomplete means of instruction.
3. The insufficient quarters and grounds for its temporary use.
4. The poor facilities for taking care of the sick.
5. The lack of small arms.
6. The want of a fixed house.
7. The small number of *private* cadets.

And in other minor matters.

But it has reason to congratulate itself upon—

1. The general good order and studiousness that have prevailed during the year.
2. The progress of the cadets generally in their studies.
3. The large number of graduates turned out in June last, many of whom are teaching schools.
4. The wider field of instruction and advanced scholarship requisite for graduation, together with the better preparation of applicants for entrance.
5. The additions to the apparatus, cabinets and library, made by purchase and donation.
6. The inspection of some of the chief institutions of learning in this country, Canada and Europe by some of the professors.
7. The further prosecution of the topographical, geological and botanical surveys of Louisiana.

And, generally speaking, the University may well be proud of the successful completion, in a highly useful manner, of another year of

no ordinary trials, which cannot but inspire confidence in its vitality and ability to cope with difficulties, and must render it more widely and favorably known.

First—The financial condition is as bad as it can be when fifty cents must do the work of a dollar. The estimate of services to be rendered the State was a *minimum* in United States currency; the University was paid in warrants which the State Treasurer could not honor, and which could only have been sold on the streets of New Orleans at a ruinous discount. To sell the warrants at such rates was ruin, and it could only be ruin to hold them, so we held them, refusing to sell, with the chances of time, registration and some action of the Legislature in our favor.

Not a warrant of this year (1871) issued up to date, except the annuity warrant, which was paid by order of court in currency, has been disposed of. All, with \$10,112 50 of the warrants on hand at the close of last year, amounting to \$81,412 50, are pledged for \$39,185 32 borrowed.

The \$9612 50 of warrants in the Citizens' Bank at the beginning of this year, as collateral for a loan, the bank, at my request, converted into State bonds, which netted \$8687 44; but with the \$10,112 50 similarly placed with Pike, Brother & Co., I regret to say that we were not so fortunate, although they were presented to the bonding commissioners by Captain Brother, of that house, as early as ten A. M. of the day on which the act became a law. All the bonds had already been taken up.

To float our large amount of greatly depreciated warrants through the year and at the same time to preserve the general efficiency of the school, has been a difficult and most disagreeable duty, and it could only have been done through the favors of the banks of New Orleans and the kindness of creditors generally.

There is probably no use of saying more on this point, except that the institution can not any longer rely on the depreciated currency to meet its heavy expenses. To be maintained on its present extended scale its dues should all be promptly paid in United States treasury notes. If the University can count on receiving only *half* its nominal assets, its proportions must be cut down and its basis contracted, its number of professors must be reduced by half, its efficiency sadly crippled, and its respectability as a State college

gone—all to the disadvantage of the youths of Louisiana and to her own detriment and dishonor. But better that than what now is—the disgrace of debts contracted with no certainty of payment.

But will State warrants ever remain at fifty cents on the dollar? Who, in the light of the past and the present, would be surprised to see them at twenty-five cents in 1872? No basis of payment, as well as basis of estimate, is a safe one but specie or United States treasury notes, and the board of supervisors should accept no other. If that can not be guaranteed the State cadets can not be received, and the board, falling back on its small annuity and its small number of private cadets, must cut down the dimensions of the University and curtail its expenses accordingly.

That, perhaps, ought to have been done in July last, instead of the temporizing policy of charging each beneficiary with such of his expenses, amounting to one hundred dollars a year, as probably ought never, under the law, to have been allowed him; but, then, there was *hope*—hope of an improvement in State finances, hope of securing the whole of this asylum building, and with it the hope of many more private cadets; and, lastly, there was a hope that *some-how* it would not be necessary to lose a single one of our tried, able and faithful professors, or to diminish, in the least, our means and facilities for imparting instruction, and keeping up the high grade of efficiency and respectability which we claimed for our young University; and the close of the year finds us with a faculty nearly full, with fine facilities for instruction, and a large number of cadets on the one hand, and on the other with a heavy debt and a large amount of State warrants!

Yet, notwithstanding the low rates of warrants, the University has accomplished nearly all it hoped to do. Now, it must try and relieve itself of debt, which it can do, if its *registered* warrants are paid, as we have some reason to expect, in United States currency in January next. But if they are not so paid, the Legislature should be asked to require the Auditor to cancel those warrants on the General Fund, which are practically worthless for the purpose for which they were given, and to replace them with warrants payable in currency.

An idea can best be had of the serious loss from discount on warrants, when we state that the total discount incurred in the last

five years on warrants issued to meet *minimum* estimates of expenses, would rebuild the college edifice at Alexandria; or if converted into State bonds, it would endow six professorships; or it would provide the University with the most extensive physical apparatus, together with one of the largest and best libraries in the United States.

And, besides the *direct* loss from discount, there is another loss, and a heavy one too, that results from the university being paid in depreciated and fluctuating funds. Not being able to pay promptly for our supplies and the services of our employes, we must of course pay more than cash prices. Consequently, the loss arising from depreciated warrants is two-fold. We must even pay heavily for that misfortune by increased expenses, just as one whose income is uncertain and not under his control can not live as cheaply as another whose means are assured and always at hand.

The greatest trouble springing out of our financial difficulties—our dependence on depreciated and variable warrants—is the impossibility of retaining the professors unless they can be paid with something like regularity, and *they are the University!* Brains and heart, and not alone bricks and mortar, can make a college. Men of education and ability who at this day will attempt to support their families on a small salary for the public good—whose time, like that of Agassiz, is so valuable that they can not afford to throw it away in *making money*—ought to be protected so far as that their small pay should be made certain. You injure the efficiency of a professor when you fail to support him and his family properly—when he must either deprive himself of some of the necessities of life, or if purchasing on credit and failing to pay promptly, through the university's fault, he is annoyed by the shop keeper, or badgered by the butcher and dunned by the baker. His sensitive nature revolts at such vulgar usage; his is altogether too fine an organism for such rough treatment; nor can he long stay where he is subjected to it. Really one of the greatest needs of the university is an endowment sufficient to insure the salaries of the professors.

Quite a number of old odds and ends of accounts, balances of tuition fees, of more than three years standing, are recommended to be struck from the roll of assets, as I am satisfied the parties, high as may be the standing of some of them, and sacred as are

such obligations, do not intend to pay them ; and now that the law (through the act of *limitation*) protects them in the non-payment of their debts, I think it idle to waste any more time, stationery and postage on them.

I have been compelled to report on the accounts and business generally of the institution only up to November 30, in order to be ready for the meeting of the Legislature January 1. I presume there will be no objection to it on the part of the Board of Supervisors.

The board will not recognize in the accompanying returns the neat hand-writing of Mr. S. B. Robinson. The poor old gentleman, is our wonderful man of all work, no more. His long years of intense nervous suffering he ended on the twenty-six of July last. Notwithstanding his bad health, and at times utter prostration, the university never had a more useful officer, and certainly not a more faithful one. No one can appreciate his loss as keenly as myself. For ten years I had known him intimately in the university and out of it, and under circumstances and amid trials that bring all there is in a man to the surface ; and a more generous man and true friend, and one more devoted to duty I never knew. In April last his health hopelessly failed, and for several months before he was really unfitted, in both body and mind, for the proper discharge of his duties. Yet he struggled against hope and still tried to work long after it was evident that his restless mental activity could do no good to the institution and was only hastening his death. One so generally useful the university can never expect to have again.

Mr. Robinson's successor in the clerks's office is Mr. Wm. M. Van Pelt, who deserves much credit for the very prompt and efficient manner in which the accounts have been kept and rendered.

Second—The means of instruction are not complete. It is true we have a large faculty, a good library, much apparatus, and perhaps the most extensive cabinet in the South, yet we need more of all. The professorships of Greek, Moral Philosophy and Agricultural Chemistry have been vacant all this year, and the instructor's place in book-keeping and writing since September. A professor of Moral Philosophy can no longer be dispensed with without serious injury to the university ; the others may be, provided "stand-still," "non-progressive" be our policy. But such a policy now-a-

days is practically unwise. We can not expect the youth of Louisiana to be sent here to be educated unless the advantages here offered are in some measure equal to those of other schools, which are growing daily and adding to their facilities for instruction. See what is being done at so many schools at the North and by a few in the South. Donations of thousands of dollars are made, and a new professorship can hardly be conceived to be desirable before the necessary endowment fund is ready. How, then, can we expect to keep pace with such people if we stand still? If that is to be our policy, whether from necessity or choice, we must give up our high pretensions and lofty aspirations; and the name of University, and not even claiming to be a respectable college, let us be *honestly* what then we should be—an Academy or High School.

A university must grow, with plenty of means of ever growing, else it cannot keep step with human thought, and be the exponent of a progressive civilization. A university cannot be self-sustaining. Like a court of justice, it must be independent of all fees and all patronage, to do its work honestly, faithfully, well; and its professors must be placed above all want, or doubt as to a proper and respectable maintenance. Those institutions of society, which are necessary to its well-being, society must have, whether the people are prosperous or not, few or many; and it would be about as reasonable to say that the governorship, or judgeship or pulpit should be self-sustaining, as that a university should be; and strange to say, those very people in the United States who are most noted for their enterprise, industry and thrift, whose private and public wealth is the result of most superior judgment and economy, are our *Northern* brethren, who are so thoroughly convinced that their higher institutions of learning, so far from being self-sustaining, ought to be sustained by the private citizen; that during the last few years, they have contributed, says a recent writer, to colleges and universities as follows:

“Amherst College, Massachusetts, \$350,000; Bethlehem College, Pennsylvania, \$500,000; Princeton College, New Jersey, \$300,000; Cornell University, New York, \$870,000; Harvard College, Massachusetts, \$483,000; Hamilton College, New York, \$202,500; Rochester University, New York, \$200,000; Lafayette College, Pennsylvania, \$260,000; a Methodist college, New York, \$250,000; Rutgers

College, New Jersey, \$255,000; Tuft's College, Massachusetts, \$500,000; Chicago Unniversity, \$258,000; Yale College, Connecticut, \$720,000; with others, making an aggregate of nearly \$9,000,000."

Now, how is this institution to be properly endowed so that its existence *first*, and its efficiency *next*, shall be put beyond all danger and all doubt? Perhaps the *individual* wealth of Louisianans is not now sufficient to justify *private* donations to any extent; but many persons are able to contribute something, and they ought to do it. To suit the ability of persons of limited means, I have gotten up the following plan, as approved by the Executive Committee of the Board of Supervisors:

For every \$100 donated, the donor shall have a receipt with four coupons attached, each good for all fees of tuition for one session, and only one of the coupons to be used in any one session. A gift it is, yet one for which the public spirited man of little means is richly repaid. His \$100 now paid the University educates his son, and at the end of four years he has saved \$220, for the annual tuition fee is \$80. But where is the gain to the University? We hope to increase the number of cadets so much that the increased amounts paid for board and other fees, now footing \$220 for each cadet per annum, will more than make up the loss incurred on tuition.

We are just ready to begin this plan, and it would look strange if we could not find at least two hundred persons in Louisiana who would donate \$100 each on those terms. And apart from the \$20,000 thus donated, what a moral weight in our favor would be two hundred cadets thus promised, as it were, and partly secured for four years.

That is one means of assistance, and I believe it will succeed. Another way is to recognize the University as the Agricultural and Mechanical College of Louisiana, and give it the preceeds of the lands granted by Congress for the endowment of one or more of such colleges. That fund is now invested in some \$300,000 of State bonds at six per cent. interest; and if the whole of it be given the University its annuity (counting the old annuity of \$8,160) would be about \$26,160, which would enable it to maintain a faculty of not less than eight professors, free of all cost to the cadet for tuition.

Whether this institution is to have any portion, or all of the

Agricultural and Mechanical College fund will, no doubt, be determined by the Legislature at the coming session. The fund is so small that I think it would be unwise to divide it. Louisiana has already too many little, sickly colleges and universities, and not a single good one. The resources of all her so-called higher institutions of learning put together would not give her one good, efficient, respectable college. Why not then concentrate on some one of them—and it matters very little which one—give it all the State's means, public and private, for higher education, and try to make it serve the real purposes of a university in fact?

The small agricultural and mechanical college fund ought not, in the true interests of the State, to be divided; and rather than have it so, our university should prefer seeing it given wholly to some other institution. The experience of the educational world now is: Concentrate your means for *higher* education; scatter your resources for *elementary* education. The State is bound to see that every child within her limits has an opportunity to know enough to comprehend the duties of a citizen; and she is equally bound to see that every youth whose circumstances admit of it, shall have an opportunity of receiving the highest mental and moral culture possible.

Common schools or fountains of learning should, like fountains of water, be everywhere over the face of the earth to minister to the common purposes and to relieve the necessities of man; but as the springs and rivulets are the offspring of the sea, and their waters must return to it for purification, so the university of a State should be its grand reservoir of thought, and learning, and knowledge—the fount of its numberless primary schools, to *teach* them what *they* shall teach, and to be responsible for *how* they teach! As well say that you can have pure fresh water, without the salty sea, as that primary schools can impart wholesome knowledge without the elevated and refining influence of the real college or university in fact. But how many colleges or universities can Louisiana maintain? That is indeed a grave question. I respectfully submit that she has not sufficient population to support more than *one* properly. Generally over the United States, there is but *one* student at college (or university) for every 2500 white inhabitants. Now, Louisiana, it is true, has about one student to every 1200 of her people, but she has not 400,000 whites, and less than 800,000 whites and

blacks; and two-thirds of her students, or about 400, she always will, it would seem, send out of the State to be educated. Where, then, are the students for so many colleges—some eight or ten—even if you could command all the Louisiana patronage to come from? If they depend for their support on the tuition fees, whence is to come their daily bread? Nowhere. Therefore, we are not surprised that some colleges have actually perished and that others are actually now starving.

Let the Legislature consider the wisdom of such a future policy as will tend to combine, if possible, all the present so-called and misnamed colleges and universities (ours of the number) into one university, to be worthy of Louisiana and useful to her people.

The accompanying circular letter (a) will apprise the honorable Board of Supervisors of a scheme now on foot to secure the passage of an act by Congress that will give to each State and Territory one million acres of the public lands for the endowment of one, and only one, college or university.

Copies of this circular have been sent to prominent men of almost every class and profession, all over the United States, and to every Senator in Congress and to many Representatives. I am glad to say that many persons are earnestly considering the project, that not a few warmly approve it, and that a bill to that effect was introduced into the House of Representatives on the eleventh instant.

Should this scheme, or an equivalent, become a law, and I believe it will, sooner or later, the higher educational interests of Louisiana will be well cared for. And may we not hope that the General Government will not only provide for each State, out of its public domain, a real university, well founded and well appointed, but a grander one still, a great national university, one that will tower high above all the State universities, and eventually surpass all the universities of the world, as surely as this great nation is destined to excel all the nations of the earth.

Dr. Folwell, President of the University of Minnesota, proposes that the act of Congress of 1862 donating lands to the States for the founding of agricultural and mechanical colleges, be so amended as that a State's quota shall be in proportion to its area, and not as now according to its Senators and Representatives in Congress.

That would be nothing more than sheer justice to many States

(Louisiana of the number) which, under the present law, have not a fair and generous share.

I hope the proposed amendment will be adopted.

Third—The quarters and grounds are not sufficient. It was expected that this whole assylum building would have been turned over to the University not later than the first of September last, in accordance with act number eighty-eight of the last session of the Legislature, but we were disappointed. Consequently we are quartered in the same crowded and confined space as last year. This is unfortunate and very injurious to the best interests of the institution. It not only deprives the university of necessary facilities for dormitories and class rooms and for the purposes of recreation, but it has also (and very properly) reduced the number of cadets. I believe the crowded condition of our quarters, with not enough room for class or academic purposes, *and with six or eight cadets to lodge and study in one room*—as is well known throughout the State—has lost us much patronage.

Your excellency deemed it unwise, considering the embarrassed finances of the State, to use the appropriation made by the Legislature for providing temporary quarters for the Deaf and Dumb Asylum. You will, no doubt, again bring the matter to the notice of that body at the coming session, when it is most earnestly to be hoped that something will be done not only to give the university suitable *temporary* quarters, but to restore its own permanent *home* buildings near Alexandria.

Fourth—The facilities for taking care of the sick are not sufficient. They are no worse now than heretofore, but our arrangements in that all-essential particular were never good.

It is a great responsibility we assume to take proper care of the sick boy. The one room devoted to hospital purposes is not sufficient, nor has it any of the conveniences a sick room should have. At present we have but the one large room, into which all the sick, the very ill and the slightly indisposed are put. That is not right; but, crowded as we are in every respect in this building, no more room can be spared for a hospital; and surely when that is the case the question of more suitable quarters becomes a very grave and a very serious one.

Some years ago I expressed the opinion that the physician to the

university should not be one of the professors. Time only confirms me in that belief. Who is specially charged with the medical care of two hundred persons in this climate has certainly enough to do without at the same time being burdened with other and totally different duties. He might have some light academic charge, such as lecturer on physiology or anatomy, or other branch bearing on his profession of medicine, but to designate as our physician as busy a man otherwise as that professor who is in the chair of chemistry, mineralogy and geology, and who is also charged with the geological survey of the State, is, in my opinion, unwise. There is no doubt about it — our surgeon and professor has too much to do. No one knows it as well as he does, and no one regrets it more. Let him be one or the other; no man can possibly be both.

The expense will be great, I am aware; but the university, unless it means to be *unjust*, must have a surgeon to do nothing else but be its *health officer*, to take care of the sick, not only, but also to prevent as far as human skill and attention can do, the *well* from getting sick; he should, too, by all means reside in the university building, which our insufficient quarters now renders impossible.

Besides one of our instructors, it was also our misfortune to lose by death, cadet A. L. Harard, of St. Landry, who died of congestive fever on the second day of October. He was noted for all the good qualities that should adorn the character of a cadet; and his loss was keenly felt by his comrades and the officers of the university who paid every respect to his memory, and to his bereaved family, offered expressions of their condolence.

I am ashamed to confess that we are still deficient in small arms; that is, we have none at all. This has been deplored so much and so often, and we have hoped for them so long, only to be disappointed, that I need now merely say that General Longstreet, the Adjutant General of the State, is trying to procure from the Government at Washington, the improved cadet musket for our corps.

But this effort, on the part of that distinguished official, has not prevented the donation of arms as intimated in my last report. The person who wished to make the gift, could not do it.

The battery of four guns presented to the institution last year affords good facilities for instruction in artillery, and they have been availed of.

In this connection, I will say that our arrangements for supplying uniforms to the cadets are very imperfect. At the beginning of the session we had our own tailor on the grounds, but we were unfortunate in the selection of a workman, and have been compelled for more than two months to have the uniforms made in New Orleans, which is very inconvenient and almost impracticable. After January we hope to have such work done again at the institution.

Sixth—The general impression is that the University is not a fixture anywhere—has no real, permanent home. That idea in the mind of the public does great injury to the best interests of the institution, and it can not be done away with too soon.

Its quiet old home in the pine woods of Rapides ought to be restored. Every day that work is delayed the public uncertainty as to our future is increased, and every day adds to the academic *materiel* which eventually is to be removed at the greater cost. It is no part of wisdom to delay any longer the beginning of the rebuilding.

Seventh—To our wants and deficiencies, mainly as given above, is chiefly due our small number of *private* cadets. We should have not less than one hundred and fifty *private* students besides the State cadets. Of that (*private*) class, there have matriculated this session, beginning September 4, only thirty-seven; and to speak plainly and truthfully, until we are better able to take care of them there should not be another accession to the corps.

Our wants are indeed many, and they should be fully known. We need more money; we need more room in our temporary home; we need more professors; we need more apparatus; we need more and better cabinets; we need a larger library; we need a few very choice specimens of fine art; we need small arms for drill and discipline; we need more cadets; and more than all, perhaps, do we need a fixed, permanent home.

Such we believe to be essentially the dark side of our picture—the needs and necessities of the University, the disadvantages, difficulties and dangers of its situation! But a kind Providence has so ordered that those who are accustomed to the darkness can see within it and out of it better than those who look at its blackness from without, and we are neither frightened nor disheartened. We are of those who prefer pursuing through difficulties a noble purpose

to its attainment, remembering that it is always darkest just before day. And the day is even now breaking. Truly has our University, in the midst of all its misfortunes, much to be thankful for.

We have long known that this institution has, generally speaking, the best discipline and the best order, as well as the best behaved, most studious and highest toned young men in this country ; and if our late *wholesale* dismissal, of which you were duly informed, in order to continue and perpetuate that happy state of things, be also instrumental, as I believe it will be, in apprising our own Louisiana public of that fact, we are more than satisfied. Of the twenty-four then dismissed all have been reinstated but eight.

There is now nothing here but order, quiet and good feeling. The cadets are cheerful and contented, and full of pride and spirit. By them and their happy condition, by their words and their acts, and by their wishes and feelings, let our discipline and its beneficial effects be judged rather than by outside ignorance or prejudice, envy or hatred, favor or affection, or by a false philanthropy or sickly sentimentality.

There is probably no pursuit or branch of business which requires more special study and closer attention than the proper management of young men at school, and I am satisfied there is none so little understood by the public generally. How frequently is it the case that a father who has entirely mistaken the true character of his son, and has therefore continually mismanaged him, gravely advises the teacher what to do ! Not only that, but some good-natured, easy-going man, who mistakes justice often for harshness, and has no use for the truth when it is unpleasant, who thinks punishment is barbarous and wrong, and would have the world always ruled by mercy and leniency, such a poor fellow, who can not manage his own one child at home, nor indeed take care of himself, even he would tell you how best to govern one hundred and fifty of other people's boys !

When you take into consideration the wide field of duties here, in this close and intricate organization, remembering that it is not only a college and a preparatory school, both together, but a large boarding house, and maintenance shop, where a young man's every need is supplied, from tuition and books down to his clothing and washing, then the strain on the responsible one may be faintly conceived of.

For full particulars regarding the discipline of the institution during the past year, I beg leave to refer to the accompanying report (E) of the commandant of cadets.

I need only say that there has been a marked improvement in the discipline and order over last year, for which the institution is indebted to the superior skill and untiring attention of Colonel Edward Cunningham, the commandant of the corps.

And to him and to the cadets it is due to say that the corps has been orderly and studious, generally, under circumstances of great disadvantage, the chief of which is their crowded quarters, and the noise and confusion resulting therefrom. Six or eight of the most painstaking, quiet and well behaved of the older men in Louisiana, could not lodge and study to advantage in a room of twenty by twenty feet; yet that is practically what we are expecting of so many boys. How they can study at all is the wonder; it would seem to be impossible. And their rooms are a marvel of neatness.

The University is growing as a school proper, continually demanding more room for strictly academic purposes, such as class-rooms, lecture-rooms, library, laboratories, cabinets, etc., etc.; and that additional room we must have here or elsewhere. Added to this, is the other great want—more lodging rooms for cadets.

If this asylum building is not to be given up entirely to the University for its temporary purposes, or if we cannot somehow or somewhere be given more room for all its uses of every kind, then the maximum number of cadets to be received should be one hundred, so as to secure sufficient room for all the purposes of instruction, and at the same time not to have too many students in one dormitory.

There must be no stint in class and lecture rooms; the professors must have every facility to teach thoroughly their respective branches, and if necessary to secure that all important point, I trust the Board of Supervisors will not hesitate to reduce the number of cadets, and to encroach on the quarters granted them for dormitories. But such an alternative would be a great misfortune, and I hope sufficient quarters for all our purposes of every kind will be soon given us here or elsewhere.

The want of small arms prevents instruction in the manual of arms, and otherwise cripples the drill and injuriously affects the dis-

cipline. Yet to our semi-military organization, with its imperfect discipline and drill, we owe much; and what the Examining Committee of the Board of Overseers of the Massachusetts Agricultural College—of which committee the learned Agassiz is chairman—says of the benefits to that institution from its military feature, applies so aptly in a great measure to our own case, that I beg leave to ask you to read it as follows:

“Your committee can not refrain from alluding to the interest which all the young men take in the drills, the evident beneficial effect upon their bearing and health, and the value of the accomplished soldiers and officers thus made for the future service of the Commonwealth, in the event of another call to send forth her sons for herself or the nation. Were no other result accomplished by this institution, the money of the Commonwealth could be no more judiciously expended, and yet this instruction is but incidental to the regular course.”

Not only *that* with us. Until this University is entirely eliminated from all the difficulties incident to its present temporary and provisional condition, and until it is again permanently re-established in its own home, its strict discipline is its very existence. To give up its strong military government *now*, is its destruction!

The progress of the cadets in their studies has generally been very satisfactory, as indicated by the accompanying reports (F) of the professors, and as further attested by the large number of graduates in June last. I am also pleased to inform the board of supervisors that many of them are now teaching school, and of the thirty beneficiary students, graduates and others who have remained four years at the University, twenty-four are now engaged in teaching, three have already fulfilled their obligation to the State, one is incapacitated on account of ill health, but three, I regret to say, have not, as far as I can learn, taught school as the law directs. What reason they may have, if there be any, for failing to perform so sacred a duty, I do not know, as I have had no communication from them.

I would here express my belief that the beneficiary law is often greatly abused. It is not unfrequently the case that the sons of large land proprietors, fat office holders and other persons in good circumstances, are sent here as beneficiaries. Surely that is wrong;

yet how the institution is to go *behind* the certified statement of the proper legal authorities that they are unable to defray their necessary expenses here, is a question for the board of supervisors and the Legislature to decide. But if there is no feasible way to correct such abuse; if the appointment of improper subjects and the giving of *false* certificates can not be prevented, it would be better to strike out from the law the indigent clause altogether, and to let the appointment be based entirely on a competitive examination. Let the best scholar in the public schools have it, without regard to his pecuniary condition. If that is done, the appointing power should be a school board in the parish, as is now the case in New Orleans.

It would seem that our graduates command the respect of the public to a high degree, as several of them are holding very responsible positions in the schools of the State. Four are assistant professors here, two are joint principals of the flourishing Military High School of New Orleans, two others have charge of a large male school in Baton Rouge, and several are teachers in the public, Peabody and private schools of the State.

For more special information regarding the beneficiaries who, having finished their course of study at the University, were required to teach school in Louisiana, please see accompanying report (b).

Of the graduates from among the private cadets one is assistant professor of mathematics here, another a levee engineer, and a third is a parish surveyor. Considering the fact that the University has but *three graduating classes*, making a total of thirty-five graduates, this exhibit is very creditable. It speaks well for the earnestness and efficiency with which the graduates have assumed the duties of a citizen. And not only are the graduates generally acquitting themselves well, but many of those whose studies here were, for some cause, interrupted, are known to be doing well, quite a number being engaged in teaching school in this and adjoining States, while others have become lawyers, physicians, merchants and planters.

It will be readily observed that the University can not long have an average number of one hundred and fifty young Louisianians on its rolls without the State, with its small population, soon becoming filled with its alumni; and then the University becomes the State! How necessary then to inculcate in the minds of our students knowl-

edge—not merely literary and scientific, but knowledge of what is due to others as well as to themselves; a love of order and a respect for discipline; an obedience to all the laws of God and man, for their own and their country's sake; in a word, how to be law-abiders as well as law-makers. And that we are doing after a manner we think best and most effectual, heedless alike of the erroneous but conscientious views of some of our best people, and the falsifying pen and slanderous tongue of the contemptible demagogue, who, to attain his own miserable, selfish ends, would sink school and State and everything else good and useful, noble and holy; who one day clamors for the utter destruction of the institution on account of the misconduct of *one* of its cadets whose sins he would visit upon *all*; and at another time rails at the authorities for their efforts to preserve order and to protect the rights and character of the many from the thoughtlessness of the few.

But Louisiana sends too many youths to other States to be educated. Accompanying list (C) will show the number to be not less than four hundred, and it may exceed five hundred! Each will spend, on an average, five hundred dollars a year, and all of them together take out of our poor State not less than two hundred thousand dollars annually! No other people in the world do that—help to build up the colleges of other States, and suffer their own to perish for want of means! Let all those students and all that money be kept here at home, and be given to some one Louisiana College for twenty years; and nothing but the most flagrant mismanagement could prevent its becoming one of the best schools in America.

The wider field of instruction, advanced scholarship of graduates and better preparation for entrance, as secured this year, are all subjects of congratulation. Year by year, the standard both of outgoing and incoming, of entrance and graduation, has been raised, until now it is beginning to be very respectable. What was heretofore the freshman, or fourth class, now belongs to the preparatory department, and a year is thereby gained to the academic department for higher and more important studies. Botany, the German language and English literature have been added to the regular course of study, and in all the departments the range of study has been widened.

The classes in mental and moral philosophy have been mostly suspended since the resignation of Professor Palmer. This is a misfortune, and can not be too soon remedied. Colonel Lockett conducted the class in logic from February to June; and if a professor in that department be not elected and in place by February next, the duties of the chair must be parceled out to some of the other professors. But while State warrants are half discount, an additional professor cannot be paid, and of course none should be appointed.

Mr. Hutson, the Professor of History and English Literature, is still also in charge of the Greek classes.

Dr. Hilgard declining the chair of Agricultural Chemistry, the studies of that branch have not begun; nor since the death of Mr. Robinson have the duties of instructor in book keeping and writing been assumed by any one.

Just here the condition of the University looks gloomy—four important chairs vacant, and no means to fill them. How long shall this be? Not long, we verily believe. "It may now be accepted as a settled principle in American life," says President Angell of the University of Michigan, "that no college of established strength and reputation, which is so conducted as to deserve to have its life continued, shall long lack for the supply of its substantial wants. But it is of vital consequence that this University, or any one, which deserves the public favor, should be constantly improving in some respect. If it is resting on its laurels, if it is sitting down satisfied with its past achievements, if it is not incessantly asking 'how can I do more or better work,' it does not deserve to be favored or helped. It is in danger of dying of dry rot. It is not well to have spasmodic periods of advance followed by decline. Every year should bring some gain. In this day of unparalleled activity in college life the institution which is not steadily advancing is certainly falling behind." Thus speaks the President of the great University of the Northwest, or, as some believe, of the highest institution of learning on this continent. Let us of the Southwest take warning by his words of wisdom, and resolve that whatever be the apparent necessity this University must not stand still or fall behind. Its needed professors, it must have; and it must ever continue steadily to advance.

It is almost useless to speculate upon what chairs should be established in the event of the Agricultural and Mechanical College fund being given to this University. That was done at length in the report of 1869, to which, if desirable, the Board will please refer. It will be found that very few chairs are needed beside those already established and designed to be established as soon as the school may be in funds. The chief things to be provided are the model farm and the workshops.

Regarding the proper organization of the Agricultural and Mechanical College there is so much valuable information in a recent able report of Dr. E. W. Hilgard to the Board of Trustees of the University of Mississippi, that I beg leave to forward herewith a printed copy for your perusal. Essentially the doctor's programme should be adopted in Louisiana.

I regret to say that the superintendent has been able to do so very little duty as professor, simply because it has been impossible. His duties anyhow are too many and too extensive, and daily growing; and when deranged finances complicates the business of the institution, and requires him frequently to be absent, he can not attempt the instruction of a class without manifest injustice to the cadets and himself. The work of the mathematical chair has been chiefly done by Colonel Lockett, assistant professor Grimes and cadet John T. Sibley, to the latter of whom I am particularly indebted for the zeal and ability displayed in his voluntary labors.

I think it would be better to have an assistant professor of mathematics, who shall also be commandant of cadets. The duties of commandant are so onerous, and leave so little time for study that no professor is content to hold it long. For that reason Colonel Cunningham asks to be relieved of it as early as practicable.

We find it difficult to secure the services of able men not connected with the University for the monthly lectures. For one reason or another very few favored us during the year; yet we believe a little time and more patience will bring us a better future. One difficulty is the slow and uncertain means of travel to and from this place, thanks to the Backbone Railroad, whose *backbone*, if it can be found, we earnestly beg the coming Legislature or some other power to break.

Additions to the apparatus, cabinets and library have been made

during the year by purchase and donations. The cabinets and library have been very greatly increased; the apparatus not to the extent wished.

In the chemical department a good deal of valuable apparatus was provided, and that chair may now be said to be in very fair condition for good work; but the department of Natural and Experimental Philosophy is not so fortunate. Some apparatus was obtained for it, but a want of means in the latter part of the year prevented much that is needed from being purchased. However, the apparatus already at hand in the Department of Physics—injured by rough handling as some of it has been—and much more that we ought to have, and must have sooner or later, compares very favorably we believe, with that to be found in some of the best institutions in our country.

In the school of Civil Engineering not much has been added to its helps to instruction, beside many valuable books of reference and a very full and valuable set of drawings and plans of American and English public works, in which essential particular it would seem that little else is left to be provided. Most of the books, drawings and plans are from the library of the late Sir John MacNeil.

In the branches of Botany, Geology and Mineralogy, the means of instruction and facilities for illustration have been very greatly increased. The professors in those departments have been very busy during the year, and too much credit cannot be given them for what they have accomplished.

There is now an almost complete herbarium of Louisiana, beside some plants of other climates; and a large number of rare and valuable specimens of minerals have been obtained, chiefly from California and Nevada, and many interesting geological specimens (several thousand in number), principally from Illinois and Texas.

Dr. Hopkins has also secured a good number of specimens of fossils and some few minerals, in his geological investigations in Louisiana.

The Smithsonian Institution did us the honor to present our University with a large and valuable collection of minerals, fossils, building stones and shells. The shells are particularly valuable, being well determined specimens of those to be found at Mazatlan and Panama, and on the coast of Vancouver's Island.

Many similar favors, to a less extent, were done us by private individuals, whose names will appear in the appended list of donations (I).

The extensive cabinets (particularly in shells) of the late Dr. S. B. Hall were purchased in March last on very reasonable terms.

I think it highly probable that very few institutions in this country have fuller or more valuable cabinets of minerals, fossils, shells, etc., than this University. All we want is *more yet*, always more, and more room to display them and make them useful.

Along with the very large and beautiful Hall collection of shells, several thousand specimens, there is the large number obtained with the Wailes cabinets, the interesting Smithsonian collection, the handsome donation of Professor McAuley a few years since, and many specimens procured by Professor Featherman while prosecuting his botanical survey. Altogether they form a very large and valuable conchological cabinet; and although it contains about twenty thousand specimens, some of which are rare and of peculiar interest, yet we consider that cabinet as just begun. In a few years it should be many times larger and much more scientifically useful. At this time, for want of suitable room and cases, it is almost useless.

Of the archæological cabinet, the Board of Supervisors is sufficiently apprised. Beside a small number of Indian relics, mostly contributed by cadets, and a handsome and very valuable collection of Grecian, Roman, European and old American coins, presented by Mrs. C. W. Hutson, there is nothing of interest to communicate. A large number of the interesting Indian relics have been sent to the Smithsonian Institution. After being copied, they will be returned.

A good beginning has been made toward getting up a large collection of objects of natural history. The Wailes cabinets contained many valuable specimens, and during this year a good number of the reptiles and insects of Louisiana was secured by cadets mainly, with a few specimens of birds and fish.

The insects and reptiles were sent to Dr. E. D. Cope, of Philadelphia, for determination, which he has kindly done; and their scientific names will be found appended to the geological report of Dr. Hopkins, who has given this little embryo cabinet all the time he could spare.

A friend has presented the University with a collection of one hundred and twenty-five stuffed birds of New England, and a movement is now on foot, with some hopes of success, to secure through donation one of the largest museums of natural history in this country, containing besides many animals, large and small, and other things of value, about three thousand specimens of birds in a fine state of preservation.

Should it be given the University,* as I believe it will be, where to put such a magnificent present, a collection so large and scientifically valuable, will be a serious question. But the University can not afford to lose its good name for enterprise and efficiency, good taste and worth, by refusing such an offer on so flimsy a pretext as "*nowhere to put it.*" We must find a place. But really want of room sadly stares us in the face at every turn.

The collection of live animals, etc., obtained through donation has been small, comprising only a black bear, two coons, an alligator, two rattlesnakes, two Guinea pigs, and a black monkey from British Honduras; but this small beginning will, we hope, before many years grow to be a large collection, full of scientific interest to the naturalist, and curious and amusing to the mere idle looker on.

The cabinets should all, like the library, be in charge of one person, who shall be held responsible for their preservation. To attempt to dispense with the services of such an officer is unwise. Besides the confusion and general deterioration of the cabinets, it may occasionally result in the loss of specimens which money can not replace.

I would say, too, that this damp climate is very injurious to apparatus. Unless it is daily and carefully looked after, much of it soon goes to ruin.

It is to be hoped that this institution will be designated by your Excellency as the custodian of the weights and measures for the State.

We will now speak of the library: Though still deficient in many respects, the library may be called a good one. It contains many of the most valuable publications in the English language, of the last fifteen years. Its main defects are too few of the works of the early writers, nothing scarcely of the documentary history of

* This museum has been secured.

America, not enough French literature, and almost nothing of German, Spanish and Italian authors.

The total number of bound volumes is something more than 9000, with a large number of pamphlets and periodicals, some of which are valuable. According to the accompanying report of the Librarian (E) it will be seen that there have been purchased during the year 2246 volumes, and added by donation 102 volumes; total increase 2348 volumes.

With special books of reference in all the departments the professors are beginning to be right well provided. In the class rooms of civil engineers, natural philosophy, Latin and botany, very neat glass cases have been placed containing the books of reference for those chairs; and their class rooms are now chiefly the offices or "studies" of those professors. It is intended to do the same with all the class rooms as soon as it may be practicable.

It is much to be regreted that in the department of chemistry, geology and mineralogy the rich collection of books on those subjects are not immediately at the professor's hand; but a glance at the confined space allotted to him will convince you that he can put nothing more into those crowded rooms, which are barely sufficient to hold properly one-half of his large amount of apparatus, chemicals and cabinets. Really it is too bad to have that essential chair crippled for want of room. The able, and earnest, and ever working professor in charge has done all that could have been possibly done to put his department in good order; but when lecture room, laboratory, cabinets of minerals, etc., and his medical office and medicines are all in the one room of 18 by 25 feet, relieved only by a little narrow passage way, the absurdity of the case is very manifest. And I must call attention to this *dangerous* fact, that all that valuable scientific material is between the asylum laundry just under it and the University kitchen immediately over head. Its chance to be burnt up could not be much better.

Nor is the room, at present devoted to the library; sufficient for its purposes; but the large room adjoining, now applied to general uses, such as reading-room, class-room, dancing-room, etc., etc., can be provided with suitable cases, when the institution may be in funds, and made to relieve the too crowded library. Belonging to the library is a large number of maps, charts, engravings, chromo-

lithographs, paintings and busts—the pictures being hung in all the class-rooms and other public rooms, a novel sight in a school at the South, and probably in its effort to cultivate an æsthetic taste, not many institutions in the United States deserve more credit.

A few good pieces of art have been purchased this year; among them two very large and superior photographs of the Roman Forum and Coliseum, which now adorn the walls of the main entrance hall. But collecting pictures is like attempting to do anything else thoroughly and well, with insufficient means. Do all you can, so much still remains *undone*, that one is apt to become discouraged and disheartened.

There should be, as early as practicable, a really good picture in every dormitory. The cost would not be much, and the refining influence could not be estimated in dollars and cents.

Occasionally the University is the recipient of a picture presented; and now the artist Julio is preparing a copy of his great painting of Lee and Jackson at Chancellorsville, which some of the friends of the school have ordered for it.

Luckily one of our professors, Colonel S. H. Locket, is passionately fond of drawing and painting; and he is a superior artist himself, some of his amateur pieces having recently taken prizes at the State Fair in New Orleans. His taste and enthusiasm have had much to do with our efforts to cover our bare walls, stupid and expressionless, with speaking scenes and ennobling ideas.

To the Louisiana Senators and Representatives in Congress, particularly General West and Hon. Mr. Darrell, and to other members of that body, the university is indebted for many public documents during the year; and the interest recently manifested in our behalf not only by them and other officials, Federal and State, but by some of the older and larger educational institutions of the country, is very gratifying, and must prove highly beneficial.

We are particularly obliged to General West, United States Senator, for having our institution placed on the list of colleges to be furnished with copies of the government publications. This is a much greater benefit than may at first appear. Beside the usual reports of departments and bureaus, which every good library should have, there is also frequently published much of scientific interest.

In April last I wrote to each of the United States Ministers in Europe, asking them to use their influence in getting copies of some of the official publications of those governments for this institution. Your Excellency, warmly approving my action, wrote yourself to those Ministers, and your letters and my own, strongly endorsed by General Sherman, were forwarded to their destination in July last, through the office of Secretary of State at Washington. I am pleased to say that, judging from answers received, we may reasonably expect a rich return.

General Harry T. Hays, after presenting several valuable books himself, is making an effort to obtain a suitable donation of law books from the New Orleans Bar, and the Hon. William B. Egan is doing similarly at Shreveport.

Will not some of our friends of the medical fraternity do likewise?

It is the book or map given by this one, and the fossil or picture by that one, and a few dollars for endowment given by another, that is to build up your University at last and keep it ever growing. Nothing can fail that the people feel an interest in, and they are taking us by the hand.

Our institution should by all means have the likenesses of all the Governors of Louisiana and all the Presidents of the United States.

For detailed information regarding the library, please see the report of the librarian (E), which, I think, will amply repay a careful perusal. We are lucky in securing for our librarian Mr. Arthur D. Bayles, a well educated and otherwise superior young man, a graduate of King's College, London.

The reading room connected with the library is indebted to many editors, in and out of Louisiana, for copies of their papers sent us, and we trust that others will swell the list during the coming year. One copy of a newspaper is a small matter to the office which publishes it, but in the hands of many of the cadets who wish to be close observers of the busy times around them, it is considered a great treat. We welcome nothing more than a good paper, and we hope that in a few years all the best publications in the country will be sent us.

The University, it is to be hoped, will soon have its own magazine, edited by its professors and students.

The inspection of some of the chief institutions of learning, pub-

lic works, etc., in this country, Canada, England and Ireland by some of our professors during the summer and fall has been of great service to us; and we trust their reports, as accompanying, (H), may be published and read by all who may feel an interest in higher education.

It is only by visiting other institutions, in our own and other countries, exchanging views with those who have the same mission as ourselves, and finding out not only what they propose, but what they are actually doing, that we can keep our ideas vigorous and healthy. Such comparisons show us our defects; and it will readily be observed that our wants and necessities are many and great, if it is really and earnestly the intention of Louisiana to make this a first rate school.

I believe, as I have often said, that it is indispensably necessary for one or more of the professors to spend a few months every year in visiting the schools of this country and Europe. In nothing, in my humble judgment, is it more deficient than in proper ideas as to what should be the true scope and proper aim of a University, and how even our small and imperfect ideal can best be accomplished. Truly we have much to learn, and we can not become much wiser by staying at home, and imagining ourselves perfection. This is an age of activity and movement, and not the less so in the educational than in the business world.

A further prosecution of the topographical, geological and botanical survey has been made, although not as much was done as last year, owing to the absence from the State during a portion of the year of two of the professors engaged in the work. Yet a great deal has been accomplished, as the accompanying reports (G) will show, particularly in the botanical explorations.

The topographical field work is pretty nearly done, and with Major Hardie's consent, Colonel Lockett will use his new official map of Louisiana, excellent as far as it goes and beautifully executed, as the basis of his proposed topographical map. I think the combined labors of these engineers will give the public much valuable information. It is expected that a preliminary draft of this map will be ready in January.

The surface examinations of the geological survey are also well nigh finished. But little more can be expected to be known of the

top of the earth in Louisiana, and boring here and there over the State to a depth sufficient to give much information would be a costly undertaking. I think, therefore, that Doctor Hopkins, who is in charge of that survey, had better devote nearly all his time next year to making analyses of such specimens of minerals, rocks, fossils, earths, etc., as he has obtained, and to the determination of the fossils. If persons throughout the State, in digging wells, and railway contractors, in making excavations, would keep a record of the strata passed through, and forward us samples of the earth and any fossils found, they would render great assistance in determining the geology of the State.

Doctor Hilgard, of the University of Mississippi, having kindly consented to give us his ideas of the geology of the delta of our great river, a subject to which that eminent man has given much attention, his able and interesting report will also be found appended (D).

As the geology of Louisiana can not be thoroughly understood without an examination of much of the contiguous territory and of the valley of upper Red river, I would suggest the propriety of the board of supervisors asking the States of Arkansas and Texas to assist us in paying the expenses of such surveys as may be necessary in those States, respectively. The cost would not be much, and the advantage, even to them, would be considerable. Very fortunately, Doctor Hilgard's survey of Mississippi gives us the needed information respecting that State.

Professor Featherman has been very active and persistent in his botanical labors. He spent most of the summer in Northwest Louisiana and returned with much information. He has gone very carefully over about two-thirds of the State and needs fully another year to complete his efforts at gathering specimens of the whole flora of Louisiana, after which some time will be required to enable him to write out fully his scientific observations.

The three gentlemen in charge of these surveys have not let an opportunity pass to obtain information on any scientific subject that came within their notice. Mr. Featherman, it will be observed, paid much attention to conchology, Dr. Hopkins to natural history, and Colonel Lockett's quick eye and ready pencil were continually on the alert for any striking landscape or beautiful scenery.

It would be unfortunate if the Legislature, in its great necessity to retrench and economise, should find it impossible to continue the appropriation for the prosecution of these surveys. I do not believe that any of the many appropriations made last year has contributed more to the public good. But great as is the benefit to the State, and to some extent to the University, the Board of Supervisors will please bear in mind that much of the time devoted to the surveys is a serious loss to the classes of the institution, and as one of the professors in charge is the surgeon, when he is absent our sick are liable to suffer and the discipline is sure to be injured. Of course in his absence a temporary physician, at additional expense, must be called in; but a physician of Baton Rouge, the very nature of whose duties forbids a command of his time, can not visit the University at a fixed hour, and no one thing can derange the smooth working of our school more than such unavoidable irregularity of our temporary surgeon. In some respects then the surveys are to the University a positive nuisance, but cheerfully endured for the public good.

The best claim, perhaps, that this institution has to the confidence and support of the public is the vitality and endurance it has exhibited during this, another year of no ordinary trials. It is easy to float *with* the current; but when the current of events is *against* you, your State poor and people poorer still, with no settled policy about education or about anything else; even society itself in a ferment, with nothing certain, but the doubt and distrust everywhere—then to stem such a tide is a perilous undertaking. And not only to keep from being borne down and overwhelmed by such an ugly current, but actually to make headway against it, has been the history of this University almost from its incipency. But reared in the midst of dangers, and having withstood nearly every conceivable misfortune that could befall it—among the least of which have been war, pestilence, fire, poverty—it should now begin to have confidence in itself, and the public should pin its faith to it too, as strong enough to prevent by its excellent discipline any disorder within, and able, perhaps, to resist any shock from without, even the hidden and insidious attacks of a few malicious and unprincipled enemies. The people of Louisiana, without regard to class or party, are friends of the University, and with such a *moral* capital, better far than money, its success should be assured.

But come what may; even if through the ills that have befallen itself and the State the University should *now* be suspended for want of means, the misfortune can only be *temporary*. The work done in the last six years can not be wholly undone; it must ever have a healthful effect, an ineffaceable trace of good. The result of this effort, under most adverse circumstances, to establish for Louisiana a first rate school, has been so far successful that the friends of higher education are convinced—now for the first time in Louisiana—that nothing but extraordinary obstacles *ought* to prevent its complete consummation. And who would hereafter renew the attempt will be required by the public to succeed, just as certainly as from the start and for twelve long years has been constantly predicted of us! But this University is not *dead*; nor, *if let alone*, shall it die. As with an individual, so with an institution of learning, it is sometimes not unpleasant idly and vaguely to speculate as to what moral its epitaph might point.

In the mess hall there has been an improvement since last year. The fixtures about the kitchen are still far from being first rate, yet many conveniences, great and small, were secured during the year, such as a most admirable range, one of Van & Simond's largest and best, capable of cooking for four hundred persons; an old well near by recovered, and its water forced by pump through iron pipe into a large cistern of boiler iron immediately at the kitchen door; cases and shelves for crockery; troughs for dish-washing, etc., etc. The kitchen, dining room and store rooms are all kept very neat. The large dining room, with its handsome furniture, pretty chandeliers lighted with gas and with its walls hung with fine pictures, presents a most attractive appearance. But it is inconvenient as well as expensive to have this hall, kitchen, etc., on the second floor. They should be on the ground floor; but that cannot well be, unless the whole of this property be given up to the University.

The quality of the food is, I think, better than formerly, and better served; yet in these respects there is still room for improvement—our fare being like that of every college and boarding house; the less said in its praise the better. But we must recollect that Louisiana is not Kentucky or Illinois, and that we cannot keep a really good table without incurring a very great expense. We believe the food is wholesome and sufficient, and with that our young people must be content.

The laundry is not in good condition, the set of miserable shanties used for that purpose being totally ill-suited; nor can they be materially improved but at considerable expense. Bad as the washing arrangements are, and badly too as the washing is done, for that reason and other mismanagement I think it would not be prudent to incur expense in an effort to improve the rented private property used now for a laundry until something further is known about the quarters (permanent or temporary) of the University. Really the two vital questions, the two great wants, first, sufficient temporary quarters for all our purposes; second, the rebuilding and full restoration of the old permanent home of the institution, are so indispensably necessary and wholly important that they comprise in one form or other nearly all the troubles that the school is afflicted with. Only give it more quarters, plenty of room, and every department of the University becomes at once improved, rent saved, and expenses reduced.

For very full and minute information regarding the cost of maintaining a cadet, as well as expense incurred on account of tuition, please refer to accompanying tabular statement of current expenses (e). That expense does *not* include the heavy items of repairs to this building, rent of professors' houses and out-houses, refitting of furniture of every kind, additions to the library apparatus, cabinets, etc., etc., and many other expenditures necessary to be incurred for the well-being of a large and growing educational establishment like this. A carpenter must be employed almost constantly, and the painting and glazing is no small matter.

By purchase and fabrication here a considerable amount of furniture was obtained during the year, such as improved class benches for the mathematical, natural philosophy and Latin class rooms, neat portable book shelves of walnut for the cadets' rooms, blacking stools, glass cases and shelves and other purposes, chandeliers for library and dining room, mattresses, blankets, sheets, pillow-slips, towels, etc.

A few articles are still needed, but the furniture generally of the institution is now becoming very good, as the return of property (C), or better, an actual inspection will readily show.

At some expense for refitting the old fixtures gas has been introduced into the dining room, kitchen, chemical laboratory and chapel,

and we only regret that for safety and convenience the whole establishment is not so lighted.

I wish to say a word particularly about this Asylum building. It is very large, and the annual cost of keeping it in repair is considerable, most of which is borne by the University. Indeed, on that part of it occupied by the University an immense deal of work, at great expense, has been done, much to its improvement in utility and appearance. Except the roof, the lightning rods and central iron stairways, all of which are in bad condition, and some painting, plumbing and plastering needed, it is now otherwise in tolerably good condition. A great error was made in laying the gallery floors, nearly or quite level, so as to prevent proper drainage, and occasionally in storms to cause much water to be driven under the doors and windows into the rooms. These floors, from their improper construction, must soon decay, to be repaired at heavy expense. It would add much to the comfort of the building if the third floor could be provided with a gallery extending entirely around, as on the first and second floors.

The danger from fire is very great. The University has a night watchman, but once let the roof of this great house of five stories get on fire—one which now has so many fire places and so many coal oil lamps in it, in so many rash and careless hands, and it would most likely be consumed. It should be lighted with gas and heated by fines or steam, so as to reduce the liability to fire as much as possible, and it should also be insured.

There are other serious inconveniencies—no water closets and no facilities for bathing; but these might yet be readily provided for in the basements. Last year the University dug out nine good large rooms under the south wing, and I think several good basement rooms can also be secured under the centre building. An elevation of three feet to the ground floor would have admitted of a fine basement under the entire building—wings, centre and all. What a pity! The wings will readily admit of another story, as the masonry is thick and very superior. That done, and the present unsightly little square box of an observatory taken down, and the whole building surmounted with a light, graceful French (Mansard) roof, its capacity would be much increased and its appearance greatly improved.

The grounds, pavements, enclosures, etc., need attention and repairs. Instead of the miserable old wooden palings now decaying and falling down in many places, there should be, in keeping with the large, massive building, a neat, substantial iron railing. The grounds are not extensive enough. Originally the three squares immediately north of the asylum and the whole front to the river should have been secured. Two entirely separate and distinct institutions occupying the same building and grounds, cannot police them as well as either one or the other could do ; and I regret to say that although we strive, at considerable expense, to keep this place neat, there is not everywhere about the premises that cleanliness which decency and health require.

The property at Alexandria is in tolerable repair, as shown by the accompanying report (F) of Captain S. K. Hawley, in whose special charge it is. I regret that I have not been able to visit it during the year.

To make such repairs to the professors' houses as were needed, I authorized Captain Hawley to sell such of the debris of the main building as he could at a reasonable compensation, and that I believe he has done.

He has good families of careful people in all the houses ; and for his supervision of the University property, with no remuneration but the privilege of occupying one of the professor's houses with his family, I think the thanks of the Board of Supervisors are eminently due him.

One can readily form some idea of the additional expenses in furnishing quarters to professors and employes here in Baton Rouge, when he considers that all the professors' houses and out-houses are idle (for University purposes) at Alexandria, and that heavy rent for the equivalent is paid here.

That property should not remain idle any longer. The time has come for the Institution to take steps toward restoring its old home, or to dispose of what remains there and apply the proceeds to the endowment of professorships.

I would earnestly recommend that the annual session begin the first day of January and close the Wednesday before Christmas, the intermediate examination to take place in June, followed by a vacation of three months up to October. In that way we should have the

most pleasant season of the year in Louisiana for the heavy work of preparation for final examinations, and for the commencement exercises. Then, too, the academic year will agree with the fiscal year, and the annual report will cover the annual session. Now that report embraces two half sessions, and it produces confusion.

It will be borne in mind that the University is more liable to be caught by epidemics here than in the pine woods near Alexandria; hence the necessity of throwing the vacation more into the fall, even if to avoid shortening the session it be prolonged into the summer. But as our students are now of a higher order of scholarship than they were six years ago, I think they have less need of *ten months'* training than formerly; and another month more of vacation, devoted by some of the professors at least in visiting other colleges and exchanging ideas with learned men, would be of great benefit to our institution; so that, all things considered, I am greatly in favor of the *nine months'* session.

During most of the year divine service was held in the University chapel every sabbath evening at four P. M. by ministers from Baton Rouge; but latterly such has not been the case. The hour was not convenient and the attendance slim, and at no other hour can these ministers officiate.

I am coming firmly to the conclusion that I made a grave error in recommending the temporary suspension of the chaplaincies during the stay of the University at Baton Rouge. They should be revived and services held at the most suitable hour for the cadets, without regard to the convenience of persons not connected with the University.

No school can prosper without religion being a part of it. I do not mean the mere form and semblance of religion, which any miserable, long-faced, sanctimonious hypocrite whom boys soon learn to despise, can go through with, as well as the truly good and natural man, whose religion is a part of his inner self. We need a religion that can be felt and respected as much during the week as on Sunday, and that can stand the test of the class-room and the play-ground. The preacher we want to give proper religious tone to our party, must do his sacred duty not so much in the pulpit as out of it. He should be as much as possible the daily companion, friend and adviser in all things of the cadet.

Prayers have been held every morning by two of the professors.

I regret to say that the cadets have not sufficient means of recreation. The daily drill keeps them in fair health, but their only play grounds are the adjacent streets and commons of Baton Rouge. If the University had control of the grounds attached to the asylum, what is now the vegetable garden would help to give the boys elbow room. But the grounds of the asylum are not sufficient for even the proper recreation of the deaf mutes, much less our purposes too. The interests of both institutions now imperatively demand that one or the other should go elsewhere.

Not the least want of the university is a good gymnasium and a good instructor in gymnastics. No school should rest content until it has every attractive facility for preserving the health of its students.

It is to be regretted that our young people can not avail themselves more of the benefits of the good society of Baton Rouge. To some extent they have done so. During the year a number of "hops" have been given, which were well attended by the elite of the city and vicinity, and the refining influence of such occasions can not be over estimated. If the University is to remain here for any length of time, I believe it can be readily so arranged, without any detriment to the classes or to study, that a social reunion can take place once a week. That done, the actual presence or expected coming of refined ladies and gentlemen into our midst greatly relieves the necessity of severe discipline, aside from the temporary diversion, for as you purify the feelings and heighten the self-respect of students, do they govern themselves.

Mr. G. H. Staring has been permitted to give dancing lessons to such of the cadets as wished to take them. We would like to extend a like privilege to a good professor of music.

The University was honored during the year by several distinguished visitors; among them Generals Sherman and Sully, of the army; General W. L. McMillen, General Dabney H. Maury, Colonel George Williamson, Hon. R. W. Futch and Judge E. North Cullom, of Louisiana; the Hon. Mr. Conway, State Superintendent of Public Education, and Dr. Diossy, Superintendent of this public school district.

To your Excellency and to the Hon. Mr. Conway, and to the offi-

cers of the Deaf and Dumb Asylum we are indebted to much kindly official consideration, and to a great many the thanks of the University are eminently due for many good offices and valuable pecuniary assistance, but chiefly to Pike's, the Citizens' and the Hibernia Banks; to General Harry T. Hays, Colonel Walter Pugh, Captain W. C. Black, Swarbrick & Co., and to J. A. Gresham, of New Orleans; and to Hart & Hebert, Bonvillain & Lange, Henry Newell, Chapman & Co., L. & A. Rosenfield, A. J. Bogel and James McVay, of Baton Rouge. But personally, as well as officially, I am particularly indebted to Mr. J. D. Kenton, of New Orleans, without the aid of whose fine business judgment, untiring activity and prompt attention this stormy year of endless troubles could not have been weathered by me.

Now, calling the special attention of the Board of Supervisors to the following reports:

1. Roll of officers and cadets (A),
2. Treasurer's report (B),
3. Return of property (C),
4. Return of apparatus, cabinets, etc., (D),
5. Report of librarian (E),
6. Reports of professors, commandant of cadets and surgeon (F),
7. Reports of topographical, geological and botanical surveys of Louisiana (G),
8. Reports of inspections of colleges and public works (H),
9. List of donations (I),

And commending this University to the protection of Divine Providence,

I am, very respectfully,

Your obedient servant,

D. F. BOYD,

Superintendent.





ROLL OF THE OFFICERS AND CADETS
OF THE
LOUISIANA STATE UNIVERSITY, 1871.

OFFICERS.

DAVID F. BOYD, Superintendent and Treasurer.
EDWARD CUNNINGHAM, JR., Commandant of Cadets.
FREDERICK V. HOPKINS, M. D., Surgeon.

ACADEMIC BOARD.

David F. Boyd, Professor of Mathematics.
Edward Cunningham, Jr., Professor of Natural Philosophy and
Instructor in Infantry Tactics.
Samuel H. Lockett, Professor of Engineering and Instructor in
Artillery Tactics.
John P. McAuley, Professor of Latin.
_____, Professor of Mental and Moral Philosophy and
Instructor in Hebrew.
_____, Professor of Greek.
Charles W. Hutson, Professor of History and English Literature
and Acting Professor of Greek.
Americus Featherman, Professor of Modern Languages and In-
structor in Botany.
Frederick V. Hopkins, Professor of Chemistry and Acting Pro-
fessor of Geology and Mineralogy.
William A. Seay, Lecturer on Constitutional and International
Law.
S. B. Robinson, Instructor in Penmanship and Book-keeping and
Librarian. [Died July 26, 1871.]
T. L. Grimes, Assistant Professor of Mathematics.
G. D. Tarlton, Assistant Instructor in Latin.
Thomas Pugh, Assistant Instructor in Latin.
J. L. Deslattes, Assistant Instructor in French.
S. L. Guyol, Assistant Instructor in French.
A. A. Gunby, Assistant Instructor in English.
J. P. Elmore, Assistant Instructor in English.
W. S. Brown, Assistant Instructor in Mathematics.

ROLL OF CADETS.

No.	Name.	Class.	Residence.	Date of Entrance.	Remarks.
1	Aches, Frank Sylvester.	Sophomore.	Assumption parish.	September 7, 1869.	Resigned January 28, 1871.
2	Adams, James David.	Optional.	Texas.	September 10, 1870.	Resigned March 24, 1871.
3	Allen, Benjamin Franklin.	Optional.	Jackson parish.	September 21, 1870.	Dismissed November 19, 1871.
4	Alexander, John J.	Preparatory.	New Orleans.	September 4, 1871.	Resigned January 10, 1871.
5	Ashley, William Frank.	Optional.	Jackson parish.	January 22, 1870.	
6	Ashley, Arthur Willis.	Preparatory.	Jackson parish.	November 4, 1871.	
7	Babington, James Bernard.	Preparatory.	St. Charles parish.	May 4, 1871.	
8	Badley, Elmore.	Preparatory.	Baton Rouge.	March 3, 1870.	
9	Badley, Henry.	Preparatory.	Baton Rouge.	September 7, 1868.	
10	Bailey, Walter.	Sophomore.	New Orleans.	October 2, 1871.	
11	Barcliff, Julius.	Preparatory.	St. Mary parish.	September 6, 1869.	
12	Barnes, Alfred.	Sophomore.	Texas parish.	September 13, 1870.	
13	Barnes, Charles McC.	Preparatory.	West Feliciana parish.	September 5, 1870.	Resigned September 4, 1871.
14	Barrow, Aleck.	Preparatory.	New Orleans.	October 5, 1871.	
15	Barrow, Rudin Bennett.	Sophomore.	Texas.	October 6, 1869.	
16	Barrett, Lewis W.	Preparatory.	Texas.	January 23, 1870.	
17	Bell, Bryan Marsh.	Freshman.	Caddo parish.	September 22, 1866.	Graduated June 27, 1871.
18	Bell, Francis Marion.	Junior.	Baton Rouge.	March 1, 1870.	
19	Berges, Robert.	Freshman.	St. James parish.	October 6, 1869.	
20	Bongreus, Lewis.	Senior.	Wicherville, Va.	October 13, 1868.	
21	Boyd, Thomas Buckett.	Freshman.	St. Martin parish.	September 5, 1870.	Resigned February 1, 1871.
22	Boyd, Washington.	Freshman.	Jackson parish.	January 8, 1870.	
23	Brian, William Sands.	Freshman.	New Orleans.	December 5, 1868.	Dismissed March 31, 1871.
24	Brown, Joseph Ray.	Freshman.	New Orleans.	September 6, 1870.	
25	Brown, William Allen.	Senior.	New Orleans.	September 14, 1862.	
26	Brown, Daniel Madison.	Preparatory.	Terrebonne parish.	September 8, 1866.	
27	Brown, William Simon.	Preparatory.	Terrebonne parish.	September 4, 1871.	
28	Brown, James Buchanan.	Preparatory.	Baton Rouge.	September 4, 1871.	
29	Bryan, William Robert.	Sophomore.	Baton Rouge.	October 1, 1870.	
30	Burgess, Basil William.	Preparatory.	Texas.	September 10, 1870.	
31	Burges, Samuel Lovick.	Preparatory.	Lafayette parish.	September 9, 1870.	
32	Cadell, Charles Dwyer.	Preparatory.	New Iberia parish.	September 5, 1870.	
33	Campbell, Thomas Bartlett.	Junior.	Jefferson parish.	October 6, 1868.	
34	Campbell, Arthur Barton.	Preparatory.	Sabine parish.	February 29, 1870.	
35	Carruth, Walter Amicus.	Preparatory.	Rapides parish.	September 5, 1870.	
36	Chadmond, August.	Preparatory.	St. John Baptist parish.	November 4, 1871.	
37	Chadmond, August.	Freshman.	Bossier parish.	September 9, 1870.	
38	Coombs, William Lewis.				

ROLL OF CADETS - Continued.

No.	Name.	Class.	Residence.	Date of Entrance.	Remarks.
41	Creswell, David Lewis.....	Preparatory.....	Caddo parish.....	September 8, 1871.....	
42	Craumer, George Fisher.....	Preparatory.....	New Orleans.....	September 4, 1871.....	Resigned November 7, 1871.
43	Cullom, Edward Anderson.....	Freshman.....	New Orleans.....	September 6, 1870.....	
44	Cullum, William Mason.....	Preparatory.....	New Orleans.....	September 5, 1870.....	
45	Curry, Joseph.....	Freshman.....	Natchez, Miss.....	November 14, 1870.....	
46	Davis, Isaac Avery.....	Sophomore.....	Calwall parish.....	February 14, 1869.....	
47	Daniel, John Irvin.....	Preparatory.....	Washington parish.....	September 3, 1871.....	
48	Deatons, Jean Louis.....	Preparatory.....	St. James parish.....	October 1, 1871.....	
49	Devall, Stephen Cobb.....	Preparatory.....	West Baton Rouge.....	September 1, 1866.....	Graduated June 28, 1871.
50	Ducote, Cleophas Joseph.....	Senior.....	Aveyelles parish.....	April 10, 1867.....	Graduated June 28, 1871.
51	Ducote, Edward Octave.....	Senior.....	St. Bernard parish.....	September 7, 1868.....	Dismissed November 13, 1871.
52	Dunbar, Edward Merrick.....	Senior.....	East Feliciana parish.....	August 20, 1867.....	Graduated June 28, 1871.
53	Easton, Warren.....	Sophomore.....	New Orleans.....	April 11, 1867.....	
54	Edwards, Daniel.....	Junior.....	Tangipahoa.....	January 25, 1869.....	
55	Edwards, Harry Lucy.....	Junior.....	Iberville parish.....	September 5, 1870.....	Dropped January 25, 1871.
56	Ellis, Stephen R.....	Freshman.....	Washington parish.....	September 3, 1869.....	Graduated June 28, 1871.
57	Elmore, James Perelval.....	Senior.....	Livingston parish.....	September 4, 1871.....	
58	Estopinal, Hilaire Edienne.....	Preparatory.....	St. Bernard parish.....	September 7, 1868.....	Dismissed November 13, 1871.
59	Evans, Wesley Crompton.....	Senior.....	New Orleans.....	October 1, 1868.....	
60	Fazel, Maxudian.....	Senior.....	Union parish.....	November 5, 1869.....	Graduated June 28, 1871.
61	Ferguson, Robert Gallien.....	Preparatory.....	Ipswich parish.....	January 10, 1871.....	
62	Fry, Homer.....	Preparatory.....	Aveyelles parish.....	November 8, 1870.....	Resigned February 7, 1871.
63	Firth, Charles Edward.....	Optional.....	Kathatchee parish.....	January 17, 1871.....	Graduated June 28, 1871.
64	Gallon, Zachary Taylor.....	Senior.....	Aveyelles parish.....	September 5, 1870.....	
65	Gaspard, Joseph Taylor.....	Preparatory.....	New Orleans.....	February 12, 1871.....	
66	Gallthwaite, Frank E.....	Freshman.....	Terrebonne parish.....	September 4, 1871.....	
67	Gray, William Franklin.....	Preparatory.....	Madison parish.....	November 30, 1867.....	Graduated June 28, 1871.
68	Griffith, Isaac C.....	Senior.....	Chadbourne parish.....	September 3, 1867.....	
69	Gunsly, Andrew Augustus.....	Senior.....	New Orleans.....	September 4, 1871.....	
70	Guyot, Sidney Louis.....	Preparatory.....	New Orleans.....	January 25, 1870.....	
71	Haulon, James Robert.....	Preparatory.....	Concordia parish.....	September 30, 1869.....	
72	Hart, John Dady.....	Sophomore.....	Caldwell parish.....	September 6, 1870.....	Died October 3, 1871.
73	Haskell, Frank Elias.....	Freshman.....	St. Landry parish.....	February 2, 1868.....	
74	Howard, Aleck Leroy.....	Senior.....	St. Landry parish.....	September 11, 1871.....	
75	Hawkins, Griffin T.....	Preparatory.....	Rapides parish.....	August 30, 1869.....	
76	Haynie, John C.....	Preparatory.....	East Feliciana parish.....	September 14, 1869.....	Dismissed November 13, 1871.
77	Heath, John Perkins.....	Freshman.....	West Baton Rouge.....	October 6, 1869.....	
78	Hebert, Alfred.....	Junior.....	Madison parish.....	September 4, 1871.....	
79	Robert, Olga Paul.....	Preparatory.....	New Orleans.....		
80	Henderson, Frank G.....	Preparatory.....	New Orleans.....		

ROLL OF CADETS—Continued.

81 Howitt, William Beal.....	Preparatory	De Soto parish.....	September 4, 1871..
82 Hill, John, Jr.....	Junior	West Baton Rouge.....	August 30, 1869....
83 Hilliard, Andrew.....	Freshman	Iberia parish.....	April 18, 1871.....
84 Hingle, Robert.....	Senior	Plaquemine parish.....	September 2, 1867..
85 Hines, John Calhoun.....	Preparatory	Plaquemine parish.....	September 22, 1870..
86 Hollingsworth, Gipson W.....	Senior	Ouachita parish.....	Graduated June 28, 1871.
87 Hogan, George.....	Freshman	Bienvenue parish.....	September 4, 1869..
88 Howard, Hulvatie Hospital.....	Sophomore	Livingston parish.....	September 5, 1870..
89 Hunt, Edward Tiltford.....	Preparatory	Jackson parish.....	September 17, 1871..
90 Hutchinson, William Joseph.....	Freshman	New Orleans.....	September 19, 1869..
91 Humble, Robert Franklin.....	Preparatory	Tangipahoa parish.....	September 10, 1870..
92 Hynes, Philip.....	Sophomore	Gallatin parish.....	February 4, 1871..
93 Hough, Philip.....	Preparatory	Lafourche parish.....	September 6, 1869..
94 Ives, Christopher Edwin.....	Freshman	Concordia parish.....	January 24, 1870..
95 Jackson, Simon Taylor.....	Preparatory	Jackson parish.....	September 14, 1869..
96 Jacobs, Andrew Jay.....	Freshman	Richland parish.....	September 5, 1870..
97 Jaeger, Charles, Jr.....	Preparatory	New Orleans.....	September 27, 1871..
98 Johnson, Florio Emile.....	Freshman	Pontre Coupee parish.....	September 6, 1869..
99 Jones, William Thomas.....	Preparatory	East Feliciana parish.....	January 3, 1870....
100 Jorda, Michael Joseph.....	Preparatory	St. Mary parish.....	September 4, 1871..
101 Kenna, Samuel.....	Freshman	St. Bernard parish.....	September 14, 1870..
102 Kennon, Munford.....	Preparatory	Tangipahoa parish.....	September 5, 1870..
103 Kephlinger, Walter Samuel.....	Senior	New Orleans.....	December 5, 1870..
104 Kerr, Frank Montgomery.....	Preparatory	Iberia parish.....	November 24, 1866..
105 Kene, Charles Augustus.....	Freshman	Levee parish.....	January 10, 1871....
106 Kile, Joseph Henry.....	Preparatory	Natchitoches parish.....	December 17, 1869..
107 Killgore, John Robert.....	Preparatory	Union parish.....	January 11, 1871....
108 Killgore, George Allen.....	Preparatory	Union parish.....	January 11, 1871....
109 Killgore, Joseph Curry.....	Preparatory	Texas.....	February 5, 1871....
110 Killgore, William Baldwin.....	Preparatory	Texas.....	February 5, 1871....
111 Kline, Harry Douglas.....	Preparatory	Caddo parish.....	February 1, 1871....
112 Knobloch, Gustavus A.....	Senior	Caddo parish.....	February 1, 1871....
113 Knatz, Rudolph.....	Freshman	New Orleans.....	September 2, 1867..
114 Layne, Lafayette.....	Freshman	Morehouse parish.....	September 6, 1869..
115 Larche, Emile.....	Preparatory	Morehouse parish.....	September 6, 1870..
116 LeBlanc, Francis S.....	Sophomore	St. James parish.....	May 9, 1868.....
117 Lee, John Alexander.....	Preparatory	Union parish.....	September 22, 1870..
118 Lee, Wilson McKnight.....	Preparatory	Tangipahoa parish.....	September 4, 1871..
119 Levy, Samuel.....	Preparatory	Morehouse parish.....	September 4, 1871..
120 Lewis, Curtis Clay.....	Senior	Texas parish.....	December 17, 1867..
121 Liddle, Lewis Leman.....	Preparatory	Idelhart parish.....	September 13, 1871..
122 Loevenstein, Lewis J.....	Preparatory	New Orleans.....	September 4, 1871..
123 Londerborough, Clarence W.....	Preparatory	Plaquemine parish.....	September 14, 1871..
124 Martin, Robert.....	Sophomore	New Orleans.....	September 6, 1869..
			Dismissed November 13, 1871.

Graduated June 28, 1871.

Graduated June 28, 1871.

Resigned April 30, 1871.

Graduated June 28, 1871.

Dismissed April 4, 1871.

Graduated June 28, 1871.

Dismissed November 13, 1871.

ROLL OF CADETS - Continued.

No.	Name.	Class.	Residence.	Date of Entrance.	Remarks.
125	Martinez, Frank Paul.....	Preparatory	New Orleans.....	October 18, 1871.....	
126	Martinez, Edward Mims.....	Preparatory	New Orleans.....	October 18, 1871.....	
127	Martinez, Albert Allen.....	Preparatory	New Orleans.....	October 18, 1871.....	
128	Marta, Henry George.....	Preparatory	New Orleans.....	January 5, 1871.....	Dismissed June 2, 1871.
129	Maugham, Clay Bernard.....	Freshman	East Baton Rouge parish.....	September 2, 1870.....	
130	May, George.....	Freshman	New Orleans.....	September 6, 1871.....	
131	Mayer, Alfred Joseph.....	Preparatory	Avoyelles parish.....	January 17, 1871.....	
132	McCallum, William H.....	Freshman	Terrebonne parish.....	September 14, 1870.....	
133	McClendon, William H.....	Preparatory	St. Helena parish.....	October 13, 1871.....	
134	McKnight, Joseph J.....	Preparatory	New Orleans.....	September 14, 1871.....	Dismissed November 13, 1871.
135	McMoy, Andrew.....	Freshman	Jackson parish.....	September 5, 1870.....	
136	McKee, Samuel W.....	Preparatory	Pontchartraine parish.....	December 20, 1870.....	
137	Moore, John G.....	Preparatory	New Orleans.....	September 4, 1871.....	
138	Molaison, Edward A.....	Preparatory	New Orleans.....	December 5, 1870.....	
139	Mills, John Campbell.....	Preparatory	New Orleans.....	September 9, 1870.....	Dismissed March 1, 1871.
140	Milligan, William Francis.....	Preparatory	Lafayette parish.....	October 1, 1871.....	Resigned February 13, 1871.
141	Norwood, David Ingram.....	Junior	East Feliciana parish.....	August 30, 1869.....	
142	Gilmer, Charles Hollinger.....	Sophomore	New Orleans.....	September 6, 1869.....	
143	Oran, Whyte Glendower.....	Preparatory	Iberville parish.....	September 4, 1871.....	
144	Parkerson, John Richard.....	Sophomore	St. Mary parish.....	August 31, 1869.....	
145	Parker, Charles Calvin.....	Freshman	Carroll parish.....	December 2, 1867.....	Dismissed March 31, 1871.
146	Parmelo, Frederick F.....	Junior	New Orleans.....	September 2, 1867.....	Resigned February 25, 1871.
147	Pearson, Claudius M.....	Sophomore	New Orleans.....	May 2, 1868.....	
148	Patterson, William Henry.....	Preparatory	Iberville parish.....	September 12, 1871.....	
149	Pattillo, Charles.....	Preparatory	Weston parish.....	September 8, 1871.....	
150	Parkins, James Lewis.....	Sophomore	East Feliciana parish.....	October 6, 1869.....	Resigned September 19, 1871.
151	Parkins, William Cadenby.....	Preparatory	East Feliciana parish.....	August 30, 1869.....	Dismissed June 1, 1871.
152	Pelton, William Halsey.....	Freshman	New Orleans.....	January 11, 1871.....	Dropped June 1, 1871.
153	Peyroux, Louis Placide.....	Preparatory	New Orleans.....	September 5, 1868.....	
154	Phillips, Robert Bowman.....	Preparatory	St. Landry parish.....	January 6, 1871.....	
155	Pickett, Robert Wickliffe.....	Preparatory	St. Landry parish.....	March 30, 1871.....	
156	Picher, Mason Johnson.....	Senior	De Soto parish.....	September 4, 1871.....	Graduated June 28, 1871.
157	Piper, Martin Luther.....	Preparatory	Baton Rouge.....	January 6, 1869.....	Resigned October 23, 1871.
158	Poey, William Thornton.....	Preparatory	Baton Rouge.....	September 5, 1870.....	Resigned July 10, 1871.
159	Pratt, Joel Eugene.....	Optional	Baton Rouge.....	January 3, 1870.....	
160	Price, Frederick William.....	Sophomore	Jackson parish.....	September 21, 1870.....	
161	Price, Richard Winger.....	Preparatory	Jackson parish.....	September 4, 1871.....	
162	Pugh, Meredith.....	Freshman	New Orleans.....	September 3, 1870.....	
163	Pugh, Meredith.....	Senior	New Orleans.....	January 8, 1869.....	Graduated June 28, 1871.
164	Quarles, Edward Rutledge.....	Preparatory	Weston parish.....	September 23, 1871.....	

ROLL OF CADETS—Continued.

165	Quelle, Arthur.....	Preparatory	New Orleans.....	May 5, 1871.....	Resigned June 14, 1871.
166	Randolph, Luke Peter.....	Senior.....	Winn parish.....	September 3, 1866.....	
167	Ransom, Norbert.....	Senior.....	St. Charles parish.....	March 30, 1867.....	
168	Redlich, Henry Bartlett.....	Freshman.....	Jefferson parish.....	October 12, 1869.....	Dismissed November 13, 1871.
169	Reil, Alex. Lawrence.....	Preparatory	Calcasieu parish.....	September 5, 1870.....	
170	Riddle, William Stuart.....	Preparatory	New Orleans.....	September 11, 1871.....	
171	Rivers, Peter Little.....	Preparatory	Concordia parish.....	September 6, 1869.....	
172	Robertson, James Joseph.....	Freshman.....	Rapides parish.....	September 5, 1870.....	
173	Robertson, Samuel M.....	Preparatory	Rapides parish.....	September 5, 1870.....	
174	Rogers, Russel Curtis.....	Preparatory	Rapides parish.....	September 11, 1871.....	
175	Saunders, William Thornton.....	Freshman.....	Madison parish.....	November 24, 1869.....	Dropped January 14, 1871.
176	Scott, Thomas Berling.....	Preparatory	Grand parish.....	January 15, 1871.....	
177	Seabrook, Cleora B.....	Senior.....	New Orleans.....	September 7, 1868.....	
178	Sibley, John Thornton.....	Freshman.....	East Feliciana parish.....	September 5, 1870.....	Dismissed November 2, 1871.
179	Skirwith, Wyndam R.....	Senior.....	Bossier parish.....	April 9, 1869.....	
180	Smith, John.....	Senior.....	West Feliciana parish.....	November 20, 1867.....	
181	Smith, Joseph Davis.....	Freshman.....	New Orleans.....	September 4, 1871.....	
182	Smith, William Joseph.....	Preparatory	Chalmette parish.....	September 4, 1871.....	
183	Spaulding, Joseph Hall.....	Preparatory	Rapides parish.....	September 4, 1871.....	
184	Stallard, Jesse Wright.....	Preparatory	St. Bernard parish.....	September 4, 1871.....	
185	Stanton, Henry Clay.....	Preparatory	St. Bernard parish.....	September 4, 1871.....	
186	Story, Clement.....	Preparatory	Jefferson parish.....	September 4, 1871.....	
187	Story, Saxon.....	Senior.....	St. Helena parish.....	April 3, 1871.....	
188	Street, Gustavus C.....	Junior.....	New Orleans.....	March 5, 1871.....	Dismissed November 8, 1871.
189	Strickland, Milton A.....	Senior.....	De Soto parish.....	September 4, 1871.....	Dropped November 26, 1871.
190	Stuart, Robert Simpson.....	Preparatory	Do Soto parish.....	September 2, 1869.....	
191	Stuart, Charles Bingley.....	Senior.....	St. Helena parish.....	September 2, 1867.....	Graduated June 28, 1871.
192	Sutherland, Edgar W.....	Preparatory	St. Helena parish.....	September 2, 1867.....	Graduated June 28, 1871.
193	Swords, James Ewell.....	Senior.....	St. Landry parish.....	September 2, 1867.....	
194	Tadmon, Adolphus C.....	Preparatory	St. Landry parish.....	September 2, 1867.....	Graduated June 28, 1871.
195	Talton, Green Duke.....	Junior.....	St. Mary parish.....	December 2, 1867.....	
196	Talton, Geo.....	Senior.....	St. John Baptist parish.....	September 4, 1869.....	Dropped February 26, 1871.
197	Tassin, George Henry.....	Preparatory	Morehouse parish.....	September 6, 1871.....	
198	Tatum, Bissup George.....	Sophomore.....	St. Helena parish.....	October 16, 1868.....	
199	Thompson, Alexander John.....	Senior.....	St. Landry parish.....	October 16, 1868.....	
200	Thompson, Charles Jackson.....	Sophomore.....	St. Landry parish.....	October 31, 1871.....	
201	Thompson, James Jackson.....	Preparatory	St. Helena parish.....	September 5, 1870.....	
202	Tiller, William Lafayette.....	Preparatory	St. John Baptist parish.....	September 5, 1870.....	
203	Trevel, Ernest.....	Preparatory	Natchitoches parish.....	September 5, 1871.....	
204	Tucker, John Mars.....	Preparatory	Texas parish.....	November 22, 1871.....	
205	Tulla, Hugh.....	Preparatory	Chalmette parish.....	September 8, 1870.....	
206	Van Hook, William Amabder.....	Sophomore.....	Terrebonne parish.....	October 11, 1869.....	
207	Viguerie, Frank Camille.....	Freshman.....	Ouachita parish.....	September 12, 1870.....	
208	Vinson, Robert Burton.....	Freshman.....	Ouachita parish.....	September 12, 1870.....	

ROLL OF CADETS—Continued.

No.	Name.	Class.	Residence.	Date of Entrance.	Remarks.
209	Wadsworth, William Oscar.....	Preparatory	Washington parish.....	September 5, 1870..	
210	Walker, Edward Marcus.....	Freshman.....	St. Mary parish.....	May 6, 1870.....	
211	Ware, Richard Mathis.....	Preparatory	Bluerville parish.....	September 26, 1871.	Dismissed November 13, 1871.
212	Warren, William Lafayette.....	Preparatory	Washington parish.....	May 4, 1871.....	
213	Weaver, Frank C.....	Freshman.....	New Orleans.....	September 6, 1869..	Resigned September 4, 1871.
214	Webb, Robert Emmett.....	Preparatory	Ascension parish.....	September 4, 1871..	
215	Weems, Rollow B.....	Freshman.....	Rapides parish.....	September 5, 1870..	
216	Whetstone, Ashbury Hope.....	Preparatory	Morehouse parish.....	August 30, 1869..	
217	White, Isiah Booker.....	Senior.....	East Feliciana parish..	October 1, 1870.....	
218	Wier, Charles Ferguson.....	Junior.....	British Honduras.....	August 31, 1868..	
219	William, Thomas P. each.....	Preparatory	St. Mary parish.....	September 16, 1870.	
220	William, George G. Jr.....	Preparatory	Caddo parish.....	November 17, 1871.	
221	Williamson, Charles A.....	Freshman.....	Bardotown, Kentucky..	November 1, 1870..	
222	Willett, William Edward.....	Preparatory	New Orleans.....	December 5, 1870..	
223	Wolf, Joseph Leonard.....	Junior.....	Baton Rouge.....	September 6, 1869..	
224	Wood, Frederick Dickson.....	Freshman.....	East Feliciana parish..	September 5, 1870..	
225	Wiggins John W.....	Sophomore.....	Tyler, Texas.....	January 23, 1871..	
226	Yates, Bigelow.....	Preparatory	New Orleans.....	May 6, 1871.....	
227	Rice, Philip Rufus.....	Preparatory	New Orleans.....	September 9, 1871..	Resigned September 9, 1871.

RECAPITULATION.

Total number of Cadets.....		228
Beneficiary Cadets.....	156	
Private Cadets.....	72	—228
		<hr/>
From Louisiana.....	217	
From Texas.....	7	
From Mississippi.....	1	
From Virginia.....	1	
From Kentucky.....	1	
From British Honduras.....	1	—228
		<hr/>
First—Senior class.....	87	
Second—Junior class.....	11	
Third—Sophomore class.....	22	
Fourth—Freshman class.....	42	
Preparatory.....	111	
Optional.....	5	—228
		<hr/>

On account of raising the grade at the beginning of this session, (September 4), what was the freshman class last session is now the preparatory.

NOTE.—Four cadets were received during the month of December. Twelve applicants, failing to pass the required examination, were refused admission.

Total number of applicants (received and not received) 240.

LOUISIANA STATE UNIVERSITY.

Statement showing the Number of Cadets from each Parish of the State, and from other States, November 30, 1871.

PARISH.	Private Cadets.	Beneficiary Cadets.	Total Number Cadets.
Assension		2	2
Assumption		1	1
Avozelles	2	2	4
Baton Rouge, East	9	3	12
Baton Rouge, West	1	2	3
Bienville		3	3
Boesier	1	2	3
Caddo	1	3	4
Calcasieu		2	2
Caldwell		3	3
Cameron			
Carroll		2	2
Catahoula			
Claiborne		3	3
Concordia		3	3
De Soto	1	4	5
Felician, East	5	4	9
Felician, West		3	3
Franklin			
Grant		1	1
Iberia	1	2	3
Iberville	2	2	4
Jackson	4	5	9
Jefferson	1	2	3
Lafayette		2	2
Livingston		2	2
Lafourche		2	2
Madison		3	3
Morehouse	2	2	4
Natchitoches		3	3
Orleans, parish			
Orleans, city	16	31	47
Ouachita		3	3
Plaquemine		2	2
Pointe Coupee		2	2
Rapides	1	6	7
Richland	2	1	3
Red River			
St. Bernard	2	3	5

STATEMENT SHOWING THE NUMBER OF CADETS, ETC.—*Continued.*

PARISH.	Private Cadets.	Beneficiary Cadets.	Total Number of Cadets.
St. Charles		2	2
St. Helena		4	4
St. James		3	3
St. John Baptiste		3	3
St. Landry	4	3	7
St. Martin		1	1
St. Mary	2	4	6
St. Tammany			
Sabine		1	1
Tensas		3	3
Terrebonne	2	3	5
Tangipahoa		4	4
Union	2	2	4
Vermilion			
Vernon			
Washington		4	4
Webster		2	2
Winn		1	1
Texas	7		7
Mississippi	1		1
Virginia	1		1
Kentucky	1		1
British Honduras	1		1
Total	72	156	228

GENERAL PRIZE EXAMINATIONS.

The English prize medal was awarded to cadet M. A. Strickland.
 The French prize medal was awarded to cadet S. L. Guyol.
 The Latin prize medal was awarded to cadet G. D. Tarlton.
 The drawing prize medal was awarded to cadet F. M. Kerr.
 The declamation prize medal was awarded to cadet A. J. Thompson.
 The Oratorical prize medal was awarded to cadet C. J. Thompson.
 The conduct prize medal was awarded to cadet George Hogue.
 The Tyler medal of honor was awarded to cadet R. S. Stuart.
 The mathematical, natural philosophy and chemistry, Greek and
 (Kenton) commercial school medals were not awarded.

SPECIAL PRIZE EXAMINATIONS.

Professor McAuley's prize medal, freshman Latin, was awarded to cadet O. P. Hebert.

Professor McAuley's prize medal, sophomore Latin, was awarded to cadet M. A. Strickland.

DEGREES CONFERRED.

The degrees conferred on the graduates of session 1870-'71 were as follows :

Master of Arts.

Edgar Williamson Sutherlin, De Soto parish.

Bachelors of Arts.

Cleophas Joseph Ducote, Avoyelles parish.

Andrew Augustus Gunby, Claiborne parish.

Martin Luther Pipes, DeSoto parish.

Greene Duke Tarlton, St. Landry parish.

Bachelors of Science.

Robert Berger, Caddo parish.

William Simon Brown, Terrebonne parish.

Jean Louis Deslattes, St. James parish.

Edward Octave Ducros, St. Bernard parish.

James Percival Elmore, Livingston parish.

Robert Gallier Ferguson, New Orleans.

Zachary Taylor Gallion, Natchitoches parish.
 Robert Hingle, Plaquemines parish.
 Gipson Walter Hollingsworth, Bienville parish.
 Gustavus Adolphus Knoblock, Lafourche parish.
 Thomas Pugh, New Orleans.
 Robert Simpson Stuart, New Orleans.

Bachelors of Philosophy.

Warren Easton, New Orleans.
 Sidney Louis Guyol, New Orleans,

Civil Engineer.

Frank Montgomery Kerr, Iberia parish.

ROLL OF GRADUATES.

Name.	Residences.	Degree.
1869.		
Eady, John H.....	St. Helena Parish.....	Bachelor of Arts.
Edwards, Travis B.....	Iberville Parish.....	Bachelor of Arts.
Grymes, Tilman L.....	Avoyelles Parish.....	Bachelor of Science.
McCollam, Henry A.....	Terrebonne Parish.....	Bachelor of Arts.
Montgomery, Thos. F.....	Carroll Parish.....	Civil Engineer.
Nichols, Robert W.....	Assumption Parish.....	Bachelor of Arts.
Packard, Heman, P.....	New Orleans.....	Bachelor of Science.
Pierson, Joseph.....	Bienville Parish.....	Bachelor of Science.
1870.		
Hayden, George M.....	Washington Parish.....	Bachelor of Arts.
Lewis, Samuel H.....	East Baton Rouge Parish.....	Bachelor of Arts.
McCormick Samuel C.....	Union Parish.....	Bachelor of Science.
Menge, Joseph.....	Plaquemines Parish.....	Bachelor of Science.
Pratt, George K.....	St. Landry Parish.....	Bachelor of Science.
Ransdell John.....	Rapides Parish.....	Bachelor of Science.
Roberts, Norton Roger.....	Rapides Parish.....	Bachelor of Science.
1871.		
Berger, Robert.....	Caddo Parish.....	Bachelor of Science.
Brown, William Simon.....	Terrebonne Parish.....	Bachelor of Science.
Deslattes, Jean Louis.....	St. James Parish.....	Bachelor of Science.
Ducote, Cleophas J.....	Avoyelles Parish.....	Bachelor of Arts.
Ducros, Edouard O.....	St. Bernard Parish.....	Bachelor of Science.
Easton, Warren.....	New Orleans.....	Bachelor of Philosophy.
Elmore, James F.....	Livingston Parish.....	Bachelor of Science.
Ferguson, Robert G.....	New Orleans.....	Bachelor of Science.
Gallin, Zachary Taylor.....	Natchitoches Parish.....	Bachelor of Science.
Gunby, Andrew A.....	Claiborne Parish.....	Bachelor of Art.
Guyol, Sidney L.....	New Orleans.....	Bachelor of Philosophy.
Hingle, Robert.....	Plaquemines Parish.....	Bachelor of Science.
Hollingsworth, Gipson W.....	Bienville Parish.....	Bachelor of Science.
Kerr, Frank W.....	Iberia Parish.....	Civil Engineer.
Knoblock, Gustaus A.....	Lafourche Parish.....	Bachelor of Science.
Pipes, Martin Luther.....	DeSoto Parish.....	Bachelor of Arts.
Pugh, Thomas.....	New Orleans.....	Bachelor of Science.
Stewart, Robert S.....	New Orleans.....	Bachelor of Science.
Sutherland, Edgar W.....	DeSoto Parish.....	Master of Arts.
Tarleton, Greene Duke.....	St. Landry Parish.....	Bachelor of Arts.

LIST OF BENEFICIARY CADETS, WHO, HAVING FINISHED THEIR COURSE OF STUDY AT THE UNIVERSITY, ARE
REQUIRED TO TEACH SCHOOL TWO YEARS IN LOUISIANA.

NAME.	Number of Years.	LOCATION.	NATURE OF SCHOOL.	POSITION.	PUPILS.				REMARKS.
					Male.	Female.	Total.	Average.	
1869									
Eady, John H.	3	University and New Orleans.	Public and Private.	Assistant. ....	.....	.....	.....	.....	Not now teaching. Time of service completed.
Edwards, Travis B.	3	New Orleans.	Private.	Principal.	90	.....	90	.....	Still teaching in Military High School, although time of service completed.
Packard, Heeman P.	2	University and New Orleans.	Public and Private.	Assistant. ....	.....	.....	.....	.....	Not now teaching.
Pierson, Joseph.	1	Minden.	Private.	Principal. ....	.....	.....	.....	.....	Not teaching this y'r, so far as known.
1870									
Geron, J. P.	2	Farmersville and Vernon, Jackson parish.	Private.	Principal. ....	.....	.....	.....	.....	No. of pupils at the school in Clinton, 115.
Hayden, Geo. M.	2	University, Bastrop and Clinton.	Private.	Asst't & Princip.	115	.....	115	.....	Still teaching in Military High School, although term of service completed.
Lewis, Sam'l H.	3	University and New Orleans.	Public and Private.	Asst't & Princip.	90	.....	90	.....	Has never taught school, so far as known.
Lovry, J. A.	2	Bellevue, Bossier parish.	Public.	Principal.	28	25	53	14	
McCormick, S. C.	2	Mt. Lebanon and Monroe.	Public and Private.	Principal.	45	.....	45	14	
Menge, Joseph.	2	New Orleans and Carrollton.	Private & German.	Assistant.	25	20	45	.....
Messey, W. O. ....	.....	.....	.....	.....	.....	.....	.....	.....
Ransdell, John.	2	Alexandria.	Private.	Principal. ....	.....	.....	.....	.....
1871									
Berger, Robert.	1	Waterproof.	Private.	Principal. ....	.....	.....	.....	.....
Brown, W. S.	1	Baton Rouge.	Peabody.	Assistant.	101	87	188	.....

LIST OF BENEFICIARY CADETS.—Continued.

Ducote, C. J.....	1	Baton Rouge.....	Private.....	Principal.....	40	40	Not teaching school, so far as known. First assistant Fillmore Boys' School.
Deallies, J. L.....	3	University.....	Public.....	Assistant.....	153	153	
Ducros, E. O.....	1	New Orleans.....	Public.....	Assistant.....	500	500	
Easton, Warren.....	1	University.....	Private.....	Assistant.....	153	153	
Edmore, J. P.....	1	St. James.....	Public.....	Assistant.....	40	40	
Ferguson, R. G.....	1	Baton Rouge.....	Private.....	Assistant.....	25	25	
Gallion, Z. T.....	2	University and Farmersville.....	Public and private.....	Assistant.....	25	50	
Gunby, A. A.....	1	University.....	Public.....	Assistant.....	47	47	Prevented from teaching this year on account of weak eyes.
Hingle, Robert.....	1	Plaquemine parish.....	Public.....	Principal.....	15	15	
Hollingsworth, G. W.....	1	Chalmette parish.....	Public.....	Principal.....	50	50	
Knoblock, G. A.....	1	Lafourche parish.....	Public.....	Principal.....	125	125	
Pipes, M. I.....	1	Kennerly.....	Private.....	Assistant.....	45	45	
Stuart, R. S.....	1	Algiers.....	Peabody.....	Assistant.....	153	153	
Sutherland, E. W.....	1	Mandeville.....	Private.....	Assistant.....	45	45	
Tarlton, G. D.....	2	University.....	Public.....	Assistant.....	153	153	

REMARKS.—Continued.—Besides the above named graduates several distinguished decess of the University are either now teaching, or are known to have taught school in Louisiana within the last three years.

D. F. BOYD, Superintendent.

Table showing the Number of Louisiana Students at some of the Colleges in other States—Session 1870-71.

UNIVERSITY.	LOCATION.	No. of Students from Louisiana.
Cumberland	Lebanon, Tennessee.....	2
Chicago	Chicago	1
Cornell	Ithaca, New York.....	1
Centre College	Danville	2
Columbia College	Washington, District Columbia..	3
Emory and Henry College.....	Washington county, Virginia....	3
Georgetown College.....	Georgetown, District Columbia..	12
Kentucky Military Institute	Frankfort, Kentucky.....	* 4
Kentucky University.....	Lexington, Kentucky.....	17
Mississippi University	Oxford, Mississippi.....	2
Mississippi College	Clinton, Mississippi.....	8
Oakland College.....	Oakland, Mississippi.....	* 5
Pass Christian College.....	Pass Christian, Mississippi.....	104
Roanoke College	Salem, Virginia	9
Spring Hill College.....	Mobile, Alabama	62
St. John's College	Fordham, New York.....	9
St. Louis University	St. Louis, Missouri	14
University of Georgia.....	Athens	1
Union College.....	Schenectady, New York.....	1
University of Virginia	Charlottesville, Virginia.....	16
Virginia Military Institute.....	Lexington, Virginia.....	12
Washington and Lee University	Lexington, Virginia.....	24
Yale College	New Haven, Connecticut.....	* 1
To which add, as the students at colleges and high schools of which we have no report, at least.....	.....	100
Total.....	.....	413

* 1869.

D. F. BOYD, Superintendent.

D. F. BOYD, Superintendent and Treasurer.

Addendum to Account Current, 1871.

1871.		Dr.	
Dec. 1—	To balance due for general expense, as per abstract	\$36,659	46
	To balance due on account of furniture, refitting and repairs, as per abstract	4,410	62
	To balance due on account of library and apparatus, as per abstract	3,999	67
	To balance due on account of cabinets, as per abstract	2,231	75
	To balance due on account of uniform, as per abstract	2,136	92
	To balance due for estimates of expense for month of December	5,500	00
		<u>\$54,938</u>	<u>42</u>
1871.		Cr.	
Dec. 1—	By balance	\$787	29
	By cadet warrant, third quarter, 1870	\$10,112	50
	By cadet warrant, first quarter, 1871	11,112	50
	By warrant, appropriation for general survey	6,000	00
	By warrant, appropriation for Board of Supervisors ..	1,000	00
	By warrant, appropriation for library and apparatus ..	10,000	00
	By warrant, appropriation for relief	20,000	00
	By cadet warrant, second quarter, 1871	11,637	50
	By cadet warrant, third quarter, 1871	11,550	00
	By cadet warrant, fourth quarter, 1871	11,550	00
		<u>\$92,962</u>	<u>50</u>
	Less part of warrant for geological sur- vey for professors	\$3,000	00
	Less warrant for Board of Supervisors ..	1,000	00
		<u>4,000</u>	<u>00</u>
		<u>\$88,962</u>	<u>50 (at 55c).</u>
		<u>\$48,929</u>	<u>37</u>
	Less note at Pike, Brothers & Co.'s	\$3,500	00
	Less note at Citizens' Bank	2,042	66
	Less note at Hibernia Bank	9,000	00
	Less note at Hibernia Bank	3,642	66
	Less note at W. C. Black's	1,700	00
	Less note at La Sasser & Binder's	4,750	00
	Less note at La Sasser & Binder's	4,750	00
	Less note at J. E. & E. H. Levy's	4,800	00
		<u>39,185</u>	<u>32</u>
		<u>\$9,744</u>	<u>05</u>
	By balance due from cadets, session 1870-71	1,566	48
	By balance due from cadets, session 1871-72	2,000	00
	By balance	40,840	60
		<u>\$54,938</u>	<u>42</u>

MEMORANDUM.

Balance due from cadets, session 1865-66	\$209	00
Balance due from cadets, session 1866-67	1,208	00
Balance due from cadets, session 1867-68	860	70
Balance due from cadets, session 1868-69	1,441	34
Balance due from cadets, session 1869-70	1,754	81
	<u>\$5,473</u>	<u>85</u>

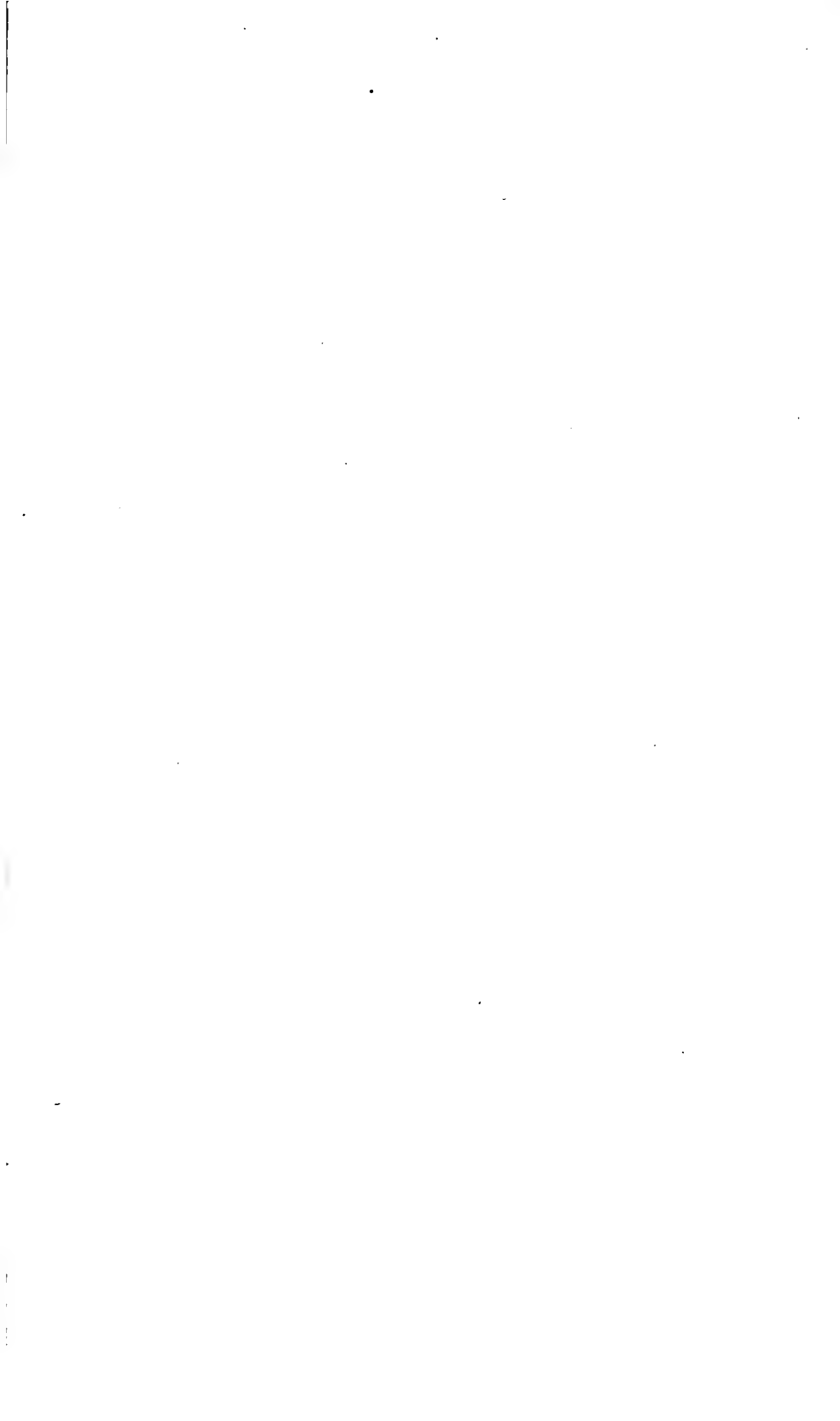
D. F. BOYD, Superintendent and Treasurer.

CURRENT EXPENSES

Of Louisiana State University from January 1 to November 30, 1871.

	January.	February.	March.	April.	May.	June.	September.	October.	November.
	Average Num- ber of Cadets present, 149.	Average Num- ber of Cadets present, 153.	Average Num- ber of Cadets present, 153.	Average Num- ber of Cadets present, 150.	Average Num- ber of Cadets present, 155.	Average Num- ber of Cadets present, 152.	Average Num- ber of Cadets present, 127.	Average Num- ber of Cadets present, 134.	Average Num- ber of Cadets present, 129.
Academic Board.....	\$2065 80	\$2065 80	\$2065 80	\$2051 15	\$2045 80	\$2063 40	\$2044 17	\$2064 17	\$2064 17
Subordinate officers.....	203 35	173 50	152 30	173 15	160 80	174 15	142 05	194 15	174 15
University building employees.....	281 90	227 80	196 30	176 30	207 35	275 30	250 00	264 40	258 75
Mess hall employees.....	372 85	368 05	337 55	307 00	325 70	353 65	317 70	299 10	305 45
Laundry employees.....	208 00	307 40	302 05	288 05	278 60	300 65	169 85	184 60	192 00
Incidentals.....	18 05	105 55	15 05	38 25	37 20	51 35	18 00	28 76	81 15
Lights.....	80 76	48 76	38 51	46 89	44 80	46 00	40 55	50 84	50 84
Commissary stores.....	2054 11	1435 32	1653 40	1534 84	1692 85	1787 94	1454 54	1856 49	1892 52
Use of text books.....	87 77	87 77	87 77	87 77	87 77	87 77	87 77	87 77	87 77
Stationery, etc.....	66 80	106 98	80 60	81 52	75 55	76 55	81 35	66 15	66 55
Fuel.....	206 77	112 27	148 50	165 00	163 62	33 60	64 25	84 00	204 00
Freight and drayage.....	68 00	53 60	40 00	53 50	91 05	36 20	46 00	70 80	93 00
Forage.....	37 33	34 75	33 35	21 60	14 35	21 00	30 20	23 85	19 70
Medicine and medical attendance.....	101 20	84 10	110 30	85 75	69 00	76 50	157 25	153 30	74 60
Total expense per month.....	\$5942 85	\$5210 75	\$5261 48	\$5110 27	\$5255 63	\$5383 46	\$4913 68	\$5438 38	\$5564 65
Monthly expense per cadet.....	39 88	34 06	34 39	34 07	33 91	35 42	38 69	40 51	43 14
Daily expense per cadet.....	1 29	1 22	1 11	1 13	1 09	1 18	1 29	1 31	1 44

D. F. ROYD, Superintendent and Treasurer.



REPORTS OF INSPECTIONS OF COLLEGES.

LOUISIANA STATE UNIVERSITY,
October 1, 1871.

Colonel D. F. Boyd, Superintendent :

SIR—In compliance with instructions from you, I visited, during the months of July and August last, some of the institutions of learning in the United States and Canada, for the purpose of examining their fixtures and apparatus for scientific instruction, and to obtain such other information as might bear upon the subject of natural philosophy or be useful to the University. It is perhaps proper to state that, at the time chosen for my visit, none of the institutions to which I went were in operation, and that consequently my facilities for obtaining much information that I desired were limited. In most instances few of the faculty could be seen—often none of them; and thus I had not the satisfaction of hearing from the professor items of interest in the special department.

From Baton Rouge I went to St. Louis, where I joined Colonel Lockett. His route and my own being nearly the same, we were together during most of my tour.

From St. Louis we went to Chicago; thence to the University of Michigan at Ann Arbor; thence to Toronto by way of Niagara Falls, and down the St. Lawrence to Montreal. We then visited Union College at Schenectady, the Rensselaer Polytechnic Institute at Troy and the United States Military Academy at West Point. In the city of New York we visited Columbia College, and in Hoboken the Stevens Institute of Technology. From New York I went to Boston, and returning by way of New Haven rejoined Colonel Lockett in Washington, where we visited the Naval Observatory, the Signal Office, the Patent Office and the Department of Agriculture. My purpose had been to see the University of Virginia, the Virginia Military Institute, and Washington Lee University, but the want of time made it necessary for me to end my excursion at Washington and return to Louisiana.

At St. Louis the great railway bridge over the Mississippi, Washington University and Shaw's Garden were objects of special interest to me. The bridge is to have arched trusses of iron and steel, with spans of five hundred feet, said to be the longest in the world. It is now thought that this great work will cost largely over five million of dollars, but such is its importance to the trade of St. Louis and the railroads which meet there that it will no doubt be speedily finished, cost what it may. The middle and western piers were completed above the reach of high water. The foundation of the eastern abutment pier was being laid. The method of sinking the caissons and excavating to reach a firm base was novel and interesting. Some of the caissons were sunk more than a hundred and twenty feet below the water level, and in them men worked under an atmospheric pressure of sixty pounds on the square inch. Three hydrostatic presses supply the force required to lift and carry the ponderous blocks of stone of which the piers are built.

We saw Washington University under great disadvantages. None of the faculty or officers were present; the building was undergoing repairs, and all the apartments were more or less in confusion. The chemical laboratory presented a good appearance, and gave evidence of special attention to quantitative analysis. The geological and mineralogical cabinet is well ordered—many of the specimens appear to be valuable. Quite a large addition was being made to the building, which I think is defective in the supply of light to the halls and some of the rooms.

Shaw's Garden is a highly improved plat of about twenty-five acres in the suburbs of St. Louis. It is the property of Henry Shaw, Esquire, but is freely open to visitors. It is beautifully adorned, and contains a great variety of flowers, shrubs and trees, besides a space specially set apart for an arboretum. Many rare exotics are to be found in the hothouses, where they are tended with skill and care. A building erected by Mr. Shaw for a library and museum contains a variety of seeds, some fruits, and a small cabinet of minerals. We received great kindness from Colonel Marmaduke, editor of the Journal of Agriculture. This gentleman gave us much information, and accompanied us to various places of interest in the city. We were not admitted into the grounds of the University of St. Louis.

From St. Louis to Chicago our route lay through a very fertile and well cultivated region. Immense fields of luxuriant corn, herds of fine cattle and numerous mines and manufactories bespoke the prosperity of the people. At Joliet, on the Illinois and Michigan Canal and the Michigan Central Railroad, about thirty miles from Chicago, are extensive quarries of the finest building stone, from which the materials for the many beautiful structures in that city have been drawn.

The improvement known as the "Deep Cut" on the Illinois and Michigan Canal had been recently finished. The object of this work is to improve the drainage of Chicago. The Chicago river emptied naturally into Lake Michigan, but with a stream so sluggish that receiving the sewerage of the city it became offensive. For years an artificial current was produced by pumping during low water, but the remedy was only partial. The "Deep Cut" was made through the swell of land which separated the lake slope from the head waters of the Illinois, so that now the Chicago river runs up stream as it were, and sends its offensive contents to the Gulf of Mexico, drawing clear, pure water from Lake Michigan.

Communication between different parts of Chicago is greatly obstructed by the river and its branches. The bridges spanning the streams at the crossings of the principal streets are made to turn on pivots, and are kept in almost constant motion to make way for the numerous craft that ply to and fro. The passage over the bridges is not allowed to be interrupted more than ten minutes at a time, yet the inconvenience arising from delays so frequent has induced these active people to make two tunnels, one under the main stream and one under the southern branch, both of which are constantly thronged with vehicles and foot passengers. Chicago is supplied with water by an iron tunnel pipe laid under the bed of Lake Michigan and extending two miles out from the shore. It is about five feet in diameter, and is protected by a continuous arch of brick masonry. At the lake end of the tunnel is a crib of woodwork filled with stone, through which a cast iron shaft, nine feet in diameter and about sixty feet deep, leads to the tunnel. The gates in the crib are at different depths, and may be opened or closed, so as to draw water from near the surface, the middle or the bottom of the lake. At the shore end of the tunnel three enormous engines pump

the water into the main pipes of the city. To prevent bursting and to give steadiness to the pressure coming from the engines, the main pipes connect with a stand pipe of wrought iron, three feet in diameter and about a hundred and forty feet high. This pipe is built in a handsome tower of substantial masonry, the top of which commands an extended view of the city. When we consider the population of Chicago, its many handsome streets and fine buildings, its great trade, its network of railroads, with its bold and costly public works, we can not but admire the enterprise which in thirty-eight years has made this city what it is to-day.

The exterior of Douglas University is handsome. It is built of irregular blocks of light-colored stone. Within, much less of care and means has been expended, though the students' rooms, which we saw, were neat and comfortable. By reason of the absence of professors and junitor we could not see the physical or chemical lecture rooms or apparatus, but we spent some time pleasantly and profitably with Professor Safford, who had charge of the observatory.

The equatorial is the largest refracting telescope in this country. It has an aperture of eighteen and a half inches, with focal length of twenty-three feet. It was made by Clark, of Boston, and is mounted in the main building on a high tower of solid stone masonry. This tower was erected at great cost and with no little difficulty, as the soil of Chicago is peculiarly bad for foundations. The meridian circle is in a separate building, mounted nearly on the level of the ground. The foundation for its support is laid in the clay near the surface. As yet there has been no derangement from settling. The telescope has an aperture of about six inches with very short focal length. It was made by Repsold, of Hamburg, and is highly spoken of by Professor Safford.

The buildings of the University of Michigan are plainer than I expected to find them. They are of brick, generally three stories high, and stand in an enclosure containing about forty acres. One building contains the library and law rooms. The library comprises about seventeen thousand volumes. The catalogue of books is made upon cards kept in the drawers of a cabinet suitably constructed. The advantage of this arrangement is that changes in the library, such as the addition or loss of a book, are more readily provided for than by the old system of printed catalogues, as nothing

has to be done but to put in or take out the corresponding card. Students are not allowed to take books from the library, but in the middle of the room are a number of comfortable seats where they may read. A building near the library is for the museum and the departments of mineralogy and geology. The museum contains many objects of interest, among them may be mentioned a handsome collection of ores, marine shells, fossils, specimens of quadrupeds, birds, fishes, seeds, sections of different kinds of wood, a beautiful marble statue of Nydia, by Rogers, statues and busts in *terra cotta* and plaster of Paris, photographs, engravings, and a large number of casts of medallions. In a third building are the department of physics, students' society halls, and a number of recitation rooms. The department of physics is much in want of space, though the apparatus is limited. A large addition was being put up between this building and the museum. It will afford the various schools the room they need, and will also add no little to the general architectural effect, as the central part of it is to be surrounded by a dome of considerable proportions. The medical department occupies the handsomest buildings on the grounds. The lecture hall is a magnificent room. In the medical museum are displayed a variety of specimens much more attractive to the eye of medical science than to the unprofessional observer.

The chemistry building is one story high with a basement, in which are the arrangements for heating with steam and supplying with water this and the adjoining houses. A small steam engine works the pump, and supplies mechanical power to the laboratory above. The laboratory space and arrangements are ample for a large number of students, besides private laboratories for professors. We failed to see the electrical apparatus.

The school of engineering has two apartments, one a drawing hall furnished with tables and boards, the other a smaller recitation room in which the professor keeps such of his models and plans as he needs most frequently for instructing his classes. We are indebted to Professor Wood and to Mr. Bennett for their polite attentions and unsparing pains to show us everything of interest in the University.

In the afternoon we accompanied Professor Watson to the astronomical observatory, which stands on a commanding hill about a

mile from the University. The equatorial is a large instrument—a refractor of thirteen inches aperture and nineteen feet focal length. It stands on a brick column about twenty feet high and is covered by a spherical dome, which may be moved from the observer's seat. In a room on the first floor is a meridian circle with collimators, an astronomical clock, and a beautiful chronograph. I found Professor Watson very kind, and ready to give me information and advice on subjects connected with my department of instruction.

The University of Michigan is supported and controlled directly by the State. All the departments are now open to women, of whom thirty-four attended the various schools during the past session.

The fees amount to only about fifteen dollars a year for citizens of Michigan, and about twenty dollars for other students. Students find board and lodging in the town of Ann Arbor; there are no arrangements for their accommodation in the University.

At Toronto we saw University College. The edifice, a costly and imposing one, is situated about a mile from the lake shore, and is surrounded by handsome grounds. Everything about the place strikes one as being substantial and complete. The interior is conveniently arranged and beautifully finished. Indeed this is much the finest college edifice we saw during our tour. I regret to say that we could only walk through and admire the handsome apartments and the library. We saw no one who could give us special information or show us the apparatus of the scientific schools. Commons and quarters are provided for the resident students, but the arrangements did not appear extensive. On the university grounds stands the magnetical and meteorological observatory. Then we saw elaborate apparatus and fixtures to indicate and record magnetic disturbances, the temperature and moisture of the air, the direction and velocity of the wind and the fall of rain. Special attention is paid to the magnetic observations, and no pains are spared to obtain accurate statistics. Mr Stewart, the gentleman in charge, kindly explained to us the use of the various instruments, and presented to us published results and extracts of the observations. The observatory is maintained by the government.

McGill College and University at Montreal, though in the city, has a quiet location and ample grounds on an elevation considerably

above the general level of the streets. Connected with the University there is an astronomical observatory, the interior of which we did not see. The collections of minerals, fossils and shells are large and arranged in excellent order. The physical apparatus, though not extensive, is well selected. A good deal of it is new and of the finest quality. I noticed especially costly pieces for illustrating the laws of sound and light. The galvanic battery is of compact and economical pattern. The library contains thirteen thousand volumes. Students are not allowed to take away books until they have deposited a certain sum of money with the librarian.

At Union College we had the good fortune to meet Professor Pearson, who received us cordially and spent several hours in taking us through the grounds and buildings.

The department of physics has a lecture room and a recitation hall, an apparatus room and a small laboratory. The apparatus comprises a variety of instruments for illustrations in the mechanics of fluids and solids, in acoustics, optics, heat and electricity.

In the museum space is admirably economised. The apartment is not lofty enough for the purpose, but besides the cases for specimens on the floor a second set is placed on a gallery running around the room, with recesses at the windows to admit, above and below, as much light as possible. The collection of minerals and fossils is of medium size. At each end of the museum hangs a large oil painting.

The school of engineering occupies a series of small rooms not, I should think, conveniently arranged. In these rooms are kept the largest collection of engineering models we have seen, among them geometrical interections, topographical models, arches, a model for finding strains in a bridge, and a superb set of models in thread of surfaces having right-lined elements. There seemed to be a full set of field instruments.

While in Schenectady we visited the extensive locomotive works located there. In the shops we saw engines in every stage of construction, and watched with interest the fabrication of each separate part.

The Rensselaer Polytechnic Institute at Troy was the next institution we visited. The main building is of stone, four stories high, and overlooking the city presents a striking appearance. The in-

terior is cramped, and in material and workmanship inferior to the outside. The chemical and metallurgical laboratories are in a detached building and appear to afford excellent facilities for practical instruction and experiment. The school of mines has been closed for lack of patronage, and for the great expense it involved. Unfortunately, operations at the Bessemer Steel Works were suspended to make some repairs, and we were thus unable to see the working of an establishment which had warily attracted us to Troy.

We visited these works, and also one of the several great rolling mills which give this town the appearance of a vast workshop, and make it an eminently fit location for a scientific school of practice. We also called on the Messrs. Gurley at their manufactory of Engineers' and Surveyors' Instruments, which was in active operation. Among the interesting objects which Mr. Gurley showed us were a new pattern of the solar compass and a fire machine for minute graduation of circles.

We spent one day at West Point, during which time my attention was directed almost exclusively to the routine of military exercises and to the department of natural philosophy. The physical apparatus is well chosen, consisting of some instruments for experimenting in every branch of natural philosophy except electricity, which subject is embraced in the course of chemistry. The polarizing apparatus is especially complete. It would seem that the national scientific school should be provided with the means necessary to keep its appliances fully equal to those of the best private institutions of the land, yet such is by no means the case at the present time. Through the kindness of Professor Wichie we were enabled to make a careful examination of the fixtures and apparatus in this school. The West Point observatory has a fine telescope, equatorially mounted, a transit instrument and a mural circle. We took a hasty look at the library and other public buildings, all of which are of the most substantial character.

Columbia College, though one of the wealthiest and very best institutions of learning in the United States, is crowded into a space scarcely sufficient for a large boarding school. The school of mines, which seems to be regarded generally as the first in this country, is sadly in want of room, and even the apartments it does occupy are not convenient. The physical apparatus is the finest I had seen up

to the time of my visit there. It is disposed in cases standing against the walls of the lecture hall. It is to be hoped that this great college will soon be provided with suitable buildings. Our thanks are due to Professor Chandler, and Mr. Cairns, of the school of mines, for their kind reception of us, and for documents and information which they gave us.

The Stephens' Institute of Technology, founded and munificently endowed by the late E. A. Stephens, is located at Hoboken, New Jersey. An elegant building on the most improved plan has been erected, and is being furnished with every convenience which experience can suggest and ample means provide. At the time of our visit the institution had not been thrown open to the students, nor were the elaborate arrangements for the approaching session complete, but through the kindness of the courteous president, Professor Morton, we were shown the various apartments, and the extensive and splendid apparatus already provided. In the basement are placed steam boilers, an engine, a machine shop, immense receivers for oxygen and hydrogen, metallurgical furnaces, arrangements for grinding glass, and galvanic batteries, from which connections extend to the scientific lecture rooms, as well as telegraphic communication throughout the building.

Besides a number of small rooms used as offices, closets, etc., the first floor comprises the library, museum, chemical laboratory, a spacious lecture hall, and an extensive physical laboratory supplied with apparatus where students are to pursue their researches, making experiments for themselves. Nothing can exceed the completeness with which the table in the lecture hall is furnished. By means of pipes and wires there are at hand a galvanic current for electric light and other purposes, oxygen, hydrogen, illuminating gas, water, steam, condensed air and vacuum. On the second floor are the lecture rooms, and apparatus rooms of physics and chemistry. The apparatus is much the finest I have ever seen. The cabinet of optical instruments is in itself a rare treasure. Most of it was obtained from the estate of a gentleman of Philadelphia who, for many years, indulged a passion for getting such things together, and in time secured this collection which is perhaps the finest in the world.

The building is furnished with elevators, by means of which ap-

paratus, difficult to handle, may be carried from floor to floor, with little trouble or risk of injury. A commodious room for the department of mechanical engineering is now being supplied with models and instruments from the best makers. The third and fourth floors are to be used for recitation rooms, a drawing room, photographic rooms, a cabinet of minerals, and workshops for skilled instrument makers, whose services may always be had when needed.

A distinctive character, it would seem, is to be given this school in the unusual facilities afforded students to make for themselves experiments which in other institutions are made by the professor only. If this system can be carried into successful operation, the Stevens Institute will place itself above every other school in this country, for the advantages it will afford to study the physical sciences, as I believe it already excels every other in its fixtures and apparatus.

My visits to Harvard and Yale were so hurried and unsatisfactory that it hardly seems worth while to give an account of them. It was impossible for me to remain at either place more than a few hours. What time I had was devoted mainly to the department of physics, and to taking note of such general features in these institutions as would strike a casual observer. The physical apparatus and arrangements for instruction and experiments at Harvard are very complete—more so perhaps than at any other institution I visited except the Stevens Institute. The chemistry building was undergoing repairs, but I was admitted into the laboratory which I did not find as large or complete as I expected. I had time only to take a hasty survey of the great library, which, in all its branches, comprises one hundred and eighty thousand volumes. The catalogue is kept as in the University of Michigan. Indeed this system seems to have been generally adopted in the best libraries. Several large and handsome buildings for students' quarters are being erected on the university grounds by private individuals. One of them which I inspected was admirable for its convenience and economy of space, while light, good ventilation and quiet had not been forgotten. The Society of Alumni is building a fine hall just outside the grounds. On applying to be admitted into the Cambridge observatory I was referred for permission to the president, and want of time preventing my making the application, I failed to see the interior arrangement and the fine instruments it contains.

At Yale I spent part of a day in the Sheffield School. The chemical laboratory here is better arranged and more completely furnished than any I saw during the summer. The physical apparatus is not as full as at Hoboken, Harvard or Columbia College. It is perhaps about equal to the cabinet at West Point. The air of maturity and permanence which everything about Harvard and Yale wears is strikingly in contrast with the unsettled appearance of most of the schools we visited. I regret that my time at these two venerable seats of learning was so limited, and my failure to meet members of either faculty so complete that the information I got was of the most superficial nature. A stranger might spend a week at each place with interest and profit.

I rejoined Colonel Lockett at Washington and with him visited the Patent Office, the Department of Agriculture, the Signal Office and Naval Observatory. We were not allowed to see any of the models in the Patent Office. At the Department of Agriculture we met with marked civility from the officials, and we looked with much interest at the collections of birds, seeds, fruits, fabrics, etc., which are arranged in instructive groups and orders.

General Sherman kindly gave us notes of introduction to the officers in charge of the Naval Observatory and the Signal Office, which secured for us admission and full explanations from Professor Harkness and Captain Howgate upon all points concerning which we desired information.

At the Signal office we saw beautiful automatic apparatus for recording meteorological changes. The direction and velocity of the wind, the temperature, moisture, and pressure of the air are all indicated and registered by instruments of the most exquisite and ingenious construction.

This office is in telegraphic communication with all the meteorological observatories of the country, and receives reports from them at least once a day. A map showing the state of the weather at these various stations is issued from the Signal Office every morning, and from a study of this map changes for hours to come are foretold with considerable accuracy.

At the Naval Observatory I was much instructed by an examination of the fixtures and apparatus, which latter consist of the finest clocks and chronometers, equatorial and meridian instruments and

a beautiful chronograph, which being thrown into telegraphic connection with one or more of the clocks records their time and realize rates with the utmost accuracy.

Wires from the observatory connect with the principal telegraph lines throughout the country for sending Washington time to distant places. The daily observations are regularly published, which I am informed is not the case at any other observatory in the United States. A refracting telescope, larger than any in this country, has been ordered by the Government for this observatory. It is said a duplicate of it will be made for Washington Lee University.

In conclusion, I desire to express my thanks to you for the opportunity afforded me of seeing the best educational institutions of this country. I regret that I have not derived as much benefit from my tour as I might have done had it not been so hurried. It being vacation time, I could get but little information about the methods of instruction peculiar to the respective schools. As far as I can learn, the system of monthly examinations is becoming popular. For the ordinary college course in physics and astronomy, I believe mathematical methods are less used than formerly. For illustrations in lectures on these subjects, drawings on the blackboard and engraved plates of large size are fast being superseded by the magic lantern. Objects or designs which are to be shown to a class may be photographed on transparent slides at small cost. Besides being always at hand, they offer the advantage of throwing on a screen images which are more accurate and striking than the finest drawings or engravings.

I am, sir, with great respect, your obedient servant,

ED. CUNNINGHAM, JR.,

Professor of Natural Philosophy and Commandant of Cadets.

REPORT OF VISIT TO VARIOUS SCHOOLS, COLLEGES, UNIVERSITIES
AND PUBLIC WORKS IN THE NORTHERN STATES AND CANADA~~S~~.

LOUISIANA STATE UNIVERSITY,
Baton Rouge, Louisiana, September 12, 1871.

Colonel D. F. Boyd, Superintendent Louisiana State University:

SIR—I beg leave to submit the following report of observations made during a visit to various schools, colleges, universities and some of the most important of the public works in the Northern States and Canadas.

This visit was made under the auspices of the Louisiana State University during the months of July and August last, and its primary object was the improvement of this university. I hope the following report will show that I have made a proper use of the time and means placed at my disposal by your liberality. I beg leave also to thank you as superintendent of the University for the pleasure and profit I have personally derived from my summer's tour.

I will record my observations in the style of an itinerary, noticing the points of interest in the order in which they were visited.

It will be impossible, and I deem it unnecessary, to give any lengthy and detailed description of the many objects that attracted my attention. I will, therefore, merely notice the fact that such objects were examined and studied by me, trusting that my future use of the valuable information I have acquired will redound to the advantage of the University in the course of the instruction of my classes.

My first visit was made to the University of the South, on Sewanee mountain in middle Tennessee. As my first visit to this university was independent of the main objects of my summer's tour, I should probably forbear making any mention of it. But as it is, like our own, in its youth and struggling against the many difficulties which surround all similar enterprises in the South, I will take the liberty to make the following remarks concerning it.

The location of the University of the South is certainly a very happy one. The extensive plateau upon which it is situated is two thousand feet above the level of the sea, thus securing even during the summer months a clear, bracing, pleasant climate. Scenery of every description surrounds the site of the university buildings.

Extended views from the lofty and exposed points of the Cumberland mountains, with their numerous "coves" and valleys; steep precipices and overhanging cliffs; beautiful cascades and picturesque nooks, all may be found in short walks from the central point.

The university is as yet but partially organized. Its buildings are temporary, but sufficient for the accommodation of some one hundred and eighty scholars. As its objects, aims and plans are all noble, it is to be hoped that it will meet with complete and speedy success, and take its place among the honored institutions of learning of our country.

As an engineer I was well repaid for my visit to Sewanee mountain by having an opportunity to examine the tunnel under the Cumberland mountains near Cowan Station, and the railroad connecting the Nashville and Chattanooga road with the Tracy coal mines. This Tracy road mounts the Cumberland range with a rise of twelve hundred feet in nine miles, with many sharp curves and daring escarpments around the mountain spurs. One can hardly understand how an engineer could be so bold as to attempt such a line unless he were inspired by the boldness of the scenery around him.

My next stopping place, after making a run by Mammoth Cave, was the city of Louisville, Ky.

Here I examined the canal around the Falls of the Ohio, now in process of enlargement by the United States Government, and the long iron bridge (over the Falls) built by Mr. Fink. I then called upon the city engineer, General St. John, and had in his company the pleasure of a very profitable visit to the various public works of the city, witnessing the laying of pavements of various kinds, the placing of sewers, the cleaning of the city streets, and the work in progress on the new city hall. General St. John since my visit has kindly forwarded to me a portfolio of engineer drawings, charts, etc. That will be a valuable addition to my means of illustrating my course of instruction.

From Louisville I went to Shelbyville, Ky., to examine the telescope of Shelby College and learn the conditions under which it could be purchased. The instrument is a very fine one for its size and abundantly large for our purposes. You have already been informed by letter of the condition in which it was found and the difficulties attending its purchase.

From Shelbyville my journey was continued to the city of Cincinnati, where I made a thorough examination of the beautiful suspension bridge for common vehicles across the Ohio river, of the simple but substantial suspension bridge between Covington and Newport, and the new iron railway bridge now constructing across the Ohio river. This latter is on the plan of the Linville Truss, and when completed will be a worthy rival of the long bridge at Louisville.

From Cincinnati I proceeded to St. Louis over a line of railroad where the marvelous feat of changing the gauge of an entire road had just been accomplished in one day. At St. Louis I joined my colleague, Colonel Cunningham, and under the courteous guidance of Colonel Vincent Marmaduke we spent three days very pleasantly and profitably in that thoroughly alive and progressive city. The objects of interest visited where the city parks, Shaw's magnificent botanical garden and museum, Washington University, and the works of the great bridge across the Mississippi.

Washington University was undergoing such extensive repairs and alterations that it was difficult to form any idea of its arrangement and outfit. Our own university seems to be its equal in every respect, excepting perhaps in the extent of its chemical laboratory. Two truss models were all that I saw appertaining to my own department.

We were unfortunate in not being able to get admittance into the University of St. Louis, owing to the fact that the time of our visit was one of some unusual religious solemnity.

Our visit to the bridge works was exceedingly interesting and instructive. At the office of the chief engineer we were shown the drawings of construction, and furnished with a permit to visit all parts of the works. The works as they now stand were thoroughly examined, and the false works, mechanical contrivances for lifting and carrying weights, and all the complicated machinery of construction carefully studied. We had the privilege of a descent into one of the minor caissons of the eastern shore works, and had the details of operations connected with it intelligently explained to us by the foreman. With this caisson to study, one could easily comprehend the magnitude of the undertaking of sinking the river piers to the depth of one hundred and twenty-six feet below the water level. I obtained a complete set of drawings and photographic

views of the bridge works from their beginning up to the date of my visit. They are now on exhibition in my engineer recitation room, showing the St. Louis end of the bridge and a half span of its steel truss, as they will be when finished, and the different stages of the work at all of the most important epochs. These drawings in themselves constitute an excellent treatise on the subject of modern bridge engineering. I have in addition the chief engineer's reports of operations up to the present time, all of which will be of great service to myself and my classes.

Next to St. Louis, we visited the rival city of the West, Chicago, passing over a fine road, in handsome cars, through a beautiful and prosperous country. On this day's journey we saw the celebrated canal, just finished, that turns the waters of Lake Michigan through Chicago river into the head-waters of Illinois river, whence they find their way through the Mississippi into the Gulf of Mexico. This canal, from a commercial point of view, ranks high as an engineer work, as it completes the commercial circuit through the heart of the United States. But its most immediate effects will probably be noticed in the improved sanitary condition of Chicago, as it acts as a great purifier to that crowded city. In Chicago we examined the tunnels under the two branches of Chicago river, the city park, the superb water works, and obtained from the city engineer a complete set of the annual reports emanating from this office. We then visited the Academy of Sciences of the city, studied the progress of the numberless new and handsome buildings going up on all sides, and then directed our attention to Chicago University. The university building, situated in the present suburbs, is quite handsome and imposing exteriorly. The interior arrangements we thought defective owing to a want of light and ventilation. We were not able to make a complete examination of the various departments of this University owing to the absence of its professors. Professor Safford, of the school of astronomy, took great pains in showing us his enormous refractory telescope and fine meridian circle, which will receive due notice from Colonel Cunningham.

From Chicago, the busy centre of Western trade, a few hours run took us to the educational centre of the Northwest, the University of Michigan, at Ann Arbor. Ann Arbor is a beautiful little city, situated in a fertile, undulating country, upon the banks of a clear running stream.

The University buildings stand on a level plateau, near the outer limits of the city. The grounds are ample and well improved; the buildings simple, but substantial. At the time of our visit considerable additions were in process of construction, that will add much to the capacity and appearance of the main building. It would be needless for me to attempt a full description of all the excellent arrangements of this noble institution. It will suffice for me to say that in all the departments we examined, we saw evidences of thoroughness and completeness, which convinced us that ample means were expended with admirable judgment in the efforts to make this not only one of the first schools of this country, but the peer of any in the world. An extensive, well-arranged, well-kept library; a museum containing pictures, paintings, engravings, statues, terra-cotta groups, casts of basso-relievos, coins, busts, medals, medallions, zoological, mineralogical and geological specimens, all well exhibited and systematically classified; a thoroughly equipped medical college; a most complete chemical and metallurgical laboratory were some of the features that attracted my attention.

The department of engineering, in which I was especially interested, is evidently in able hands in the person of Professor De Volson Wood. His arrangements for instructing his classes in drawing were simple but sufficient. His rooms did not contain many beautiful and elaborately gotten up models, but what were there were sufficient for practical purposes, and they possessed the great merit of having been made by Professor Wood and his pupils. I was particularly interested in a jointed truss of Professor Wood's contrivance, with movable braces and counter braces, by means of which the principles of all the trusses can be elucidated and exemplified. We had the pleasure of Professor Wood's attentions in our visit to the various departments and public rooms that we examined, and we would tender to him our warmest thanks for his courtesy and kindness.

The observatory stands on a high hill, nearly a mile away from the main college buildings. We had the honor of an acquaintance with Professor Watson and the pleasure of his company in our visit to the observatory, and from him we received every attention that could be desired in our examination of his telescope, meridian circle,

astronomical clock, automatic chronograph, and arrangements for electrical connection with the telegraph system of the United States.

The departments of law, mathematics and the languages, we obtained but little information about, owing to the absence of the professors in charge of them. But from what we saw, we were led to the belief that everything about this institution is first class. Michigan may well be proud of her University.

Our course eastward brought us next to Niagara Falls. Here it is difficult for any one to lose sight of nature's great wonder long enough to study the works of man. But if anything can rival the majesty of the mighty cataract it is the wonderful suspension bridge erected by the elder Roebling across the yawning gorge through which the roaring torrent rushes after taking its tremendous leap. That and the new suspension bridge nearer the falls received my careful attention. Of these two bridges one is at a loss which most to admire: the evident strength and substantialness of the former, which scarcely moves as the heaviest trains go thundering over it, or the airy lightness of the latter, that vibrates to the tread of a single foot passenger. I examined, also, with considerable interest, the several lesser bridges over various parts of the rapids, and found them all models of engineering skill in both design and workmanship.

It may not be out of place for me to notice here what seemed to me a new observation that I made while on the upper suspension bridge. The mist that boils up from the base of the falls and floats off in fleecy clouds is naturally charged with electricity. From the bridge this electricity can be taken off by any pointed rod, as a walking cane, or rod of iron, or even a key held in the hand, and gives a distinct, buzzing sound in the day, and a beautiful electric brush at night. Possibly some contrivance might be made for collecting this never ceasing supply of electricity in large quantities, and thus facilities given for the production of very handsome and pleasing effects on the suspension bridge. Owing to the shortness of our stay at Niagara I had no opportunity of making any experiments on this subject.

Mr. Barrett's museum on the Canada side is one of the objects at Niagara well worthy of a close inspection. It embraces a collection of geological, mineralogical and zoological specimens, casts of ancient monuments, relics of the North American Indians, mummies, coins and a variety of miscellaneous objects all well exhibited.

Our next visit was to the city of Toronto to examine the university located there. This university is situated on the northern side of the City Park and surrounded by very handsomely improved grounds. The building is one of the most striking that we saw in our travels. The style of architecture is perhaps somewhat too ornate and irregular. The masonry is rubble stone, with cut-stone corners, facings and ornaments; the main mass a drab color and the cut-stone portions light yellow.

The interior finish of the building is equal to its exterior in beauty and solidity; the steps of the main entrance and stairway are of stone; the floor of entrance hall of variegated tiles; the casings and fittings of all the rooms of real wood, and the windows made of finely stained glass. The museum, though not very extensive, seemed to be well arranged, the department of natural history being most strongly developed. The library and all the public rooms were unusually handsome. The laboratory was a large circular room with domed roof. Around the room extended a circular counter, with drawers, shelves and complete appliances for chemical manipulations. I saw nothing pertaining to the department of engineering, although I understood that the different branches of that science are taught in this university. The meteorological observatory, standing a short distance from the university building, seems to have received the especial attention of the Canadian government. It is complete in all respects and particularly well furnished with instruments for studying the laws of magnetic variations.

From Toronto we passed down the St. Lawrence river to Montreal, having a fine view of the Victoria Tubular Bridge, which we passed under just before reaching Montreal. The general effect of the tubular bridge is anything but pleasing. The beautiful has evidently been sacrificed to the useful. Not an ornament on piers, abutments or superstructure relieves the monotony of this otherwise unsurpassed piece of engineering. A close examination of the bridge and an inspection of its interior still leaves a feeling of regret in one's mind that so grand and so costly a work should be so deficient in anything like architectural effect.

In Montreal we visited McGill College and University, the canal around La Chine rapids, Notre Dame Cathedral, St Patrick's

Church, the city parks, and studied the architecture of the main public buildings.

McGill College is no rival of its sister the University of Toronto in outside effect, but inwardly there are the same evidences of thoroughness and solidity. The buildings are plain but substantial, standing in a fine lawn. The natural philosophy and chemical departments were well but not extensively fitted. The museum was however a very large and attractive one, containing in addition to other less interesting objects two cabinets of great interest, namely : the mineralogical and geological collection of Dr. Dawson, and the collection of shells of Dr. Carpenter. Both of these cabinets were beautifully and scientifically arranged, and I suppose for completeness without redundancy are unequaled by any other in this country. At this college I was also disappointed in not seeing the rooms of the professor of engineering, and therefore give no account of them.

Returning from the Canadas into the United States we made our next official halt at Schenectady, and visited Union College. This is one of the oldest and best endowed colleges in the country. It consists of two large detached buildings separated from each other by an interval of two hundred or more yards. The grounds in front are large and somewhat improved. To the rear is an extensive domain mostly in woods. A part of this domain has been improved into a beautiful flower garden, with serpentine walks, arbors, richly covered flower beds, a winding stream crossed by rustic bridges, and many other features that render it very attractive. This garden must add much to the pleasure and health of the students in affording an excellent place for rest and exercise.

Both of the buildings contain dormitories and public rooms. In one we visited the reception room, registrar's office and library. The library consists of some twelve thousand volumes. A part of the library room is occupied by shelves for exhibiting the geological, mineralogical and natural history cabinets. The arrangement is judicious as an economical use of space, but it injures the general effect of the room, and I think can hardly be recommended for imitation.

In the other buildings are the rooms of the natural philosophy, chemistry and engineering departments. We got admittance to the

natural philosophy department and the suite of rooms belonging to the department of engineering.

This latter, under the able administration of the late Professor Gillespie, has been brought to an unusually high state of perfection. Here we saw a very fine collection of engineer models, drawings and instruments. Conspicuous among these were a complete set of Olivier's descriptive geometry models; plaster models of arches, stairways, piers, abutments, architectural ornaments, field and permanent fortifications, topographical drawings and illustrations of topography in relief, models in wood of trusses, bridges and water wheels; engineer's drawing and surveying instruments of all kinds, and Professor Gillespie's very extensive and well-selected library of works on engineering.

We were not able to see the other departments of this time-honored institution owing to the absence of its officers. To Professor Pierson, who showed us what we did see, we return our sincere thanks.

In the city of Schenectady we had an opportunity to make an inspection of one of the largest locomotive works in the United States, where we saw the operation of constructing locomotives in all its different stages.

We examined, in addition, the iron truss bridge over the Mohawk river, and the askew lattice girder over the Erie canal. Leaving Schenectady an hour's run brought us to the busy city of Troy. Here we could have spent several days in profitable study of the many manufactories standing along the banks of the Hudson; but our time was becoming limited, and we selected the following points as being most likely to prove of the highest interest. The Bessemer steel works, the rolling mill for the manufacture of railway iron, the Rensselaer Polytechnic Institute and the manufactory of mathematical and engineering instruments of the Messrs. Gurley.

The Bessemer works we found undergoing repairs and not in operation.

The Polytechnic Institute stands on an eminence in rear of the city, and commands a fine view of Troy, the Hudson and the surrounding country. The exterior of the building is good, but the interior finish, like too many of our American colleges, seems not to have received proper care. The stairways and halls were too nar-

row, the means of getting from one part of the building to another defective, and the materials used in the floors and ceilings not of good quality. The departments of chemistry and natural philosophy appear to receive marked attention here, judging from outfits and arrangements, but civil engineering is evidently a specialty of the school, as is claimed.

The collection of models, drawings, etc., can not compare with that of Union College, but a good beginning had been made in gathering the means of illustrating a course of instruction. The unusual advantages offered by the factories and structures of the city of Troy is a great help in this direction, and is no doubt fully appreciated by the professor of engineering. The facilities for instructions in engineer and mechanical drawing at the Rensselaer Institute, are, I think, the most complete that I saw during the summer, and the drawings that were left by some of the students of last session, still on exhibition in the engineer lecture room, showed that great progress was made in that department.

We received from the Messrs. Gurly every kindness in our examination of their extensive manufactory of engineer's instruments. We watched with interest the process of fashioning various kinds of accurate and delicate instruments, transits, compasses, theodolites, chains, pins, rods, and rulers from the rude mass of copper of the smelting furnace to their accurately graduated and polished condition in the finisher's hands.

From Troy we went to the United States Military Academy at West Point. Of course a description of this well known national school is unnecessary. Not a year passes but an attempt at an account of it appears in the leading journals of the country, and as these are generally little better than egregious failures, it would be presumptuous in me to hope for better success. As an *ancien élève*, my visit to West Point was one of peculiar interest. No graduate can approach his Alma Mater after a long absence without strong emotions. Mingled feelings of pleasure and sadness are sure to make his heart swell and bring an unwonted dimness to his eye. But to a Southern graduate of West Point, as he crosses the beautiful Hudson and nears that old familiar rock-begirt plain, there are unusual causes for powerful emotions. The same mountains tower up around him, the same broad river bears him on its bosom, the same

old gray ruins of revolutionary days frown from the summits of the high-lands, the same massive barracks, academic hall, library and other buildings stand in solemn gray granite and brown sandstone as of yore, but to him all else is changed. But this change is an internal one, not apparent to the casual observer, and need not to be expatiated on.

Outwardly, West Point is the most conservative spot on this continent. Excepting a few slight improvements, in the finish of the grounds and the erection of one building, there was nothing to indicate that twelve years had passed since I left as a young graduate.

I met none of the Professors of my day but Mr. Mahan, who has since gone to his rest in the waters of the Hudson. The professors were all absent from the Point seeking recreation in scenes less suggestive of professional labors. This was a sore disappointment to me, as I have always felt and shall always feel the most genuine sentiment of affection and esteem for such men as Professors Church, Bartlett, Kendrick and Weir.

With Professor Michie, the young and able successor of Professor Bartlett, we had a pleasant and instructive day in passing through the library, trophy room, art gallery, geological and mineralogical cabinet, the engineer recitation rooms, and the apparatus room of his own department. The engineer rooms are amply supplied with models, maps and drawings for illustrating all branches of civil and military engineering. I noticed a new and complete model of the works of one of the piers of the bridge of St. Louis, showing the caisson, all of its interior arrangements, the pneumatic and hydraulic machines used in sinking it and in excavating within it, and the false works for guiding and settling the whole structure in its place. This model is of great value, but probably too costly for us to hope to be able to obtain a duplicate of it.

Colonel Cunningham will notice in detail the department of Natural Philosophy, which Professor Michie took the greatest pains to show us, and we would beg again to assure Professor Michie that we appreciated in the highest degree his patience, courtesy and unwearied kindness. The departments of Mathematics and Chemistry we did not have the pleasure of seeing, but I can speak from previous knowledge in regard to them. They are fully as well equipped as the departments we did examine, and are well worthy of a visit.

In New York city I spent six days, and made the following use of my time. In company with Colonel Cunningham, I visited Columbia College and the Stevens Institute of Technology. Our time becoming now nearly exhausted, we concluded to separate and work on different lines of operations. I remained in New York, while Colonel Cunningham went to New England to visit venerable Harvard and Yale. During the Colonel's absence, I spent one day examining the works of the suspension bridge now in progress across East river; one day in the Central Park, and one day in visiting book stores, publishing houses, picture galleries, and the Major & Knapp lithographing establishment.

At Columbia College we visited the lecture room of the professor of Natural Philosophy, where we found an extensive and well selected apparatus; the recitation room of the professor of Mathematics, and several other lecture rooms in the main building, and then made a more thorough examination of the building devoted to the School of Mines.

This school is evidently the strong feature of Columbia College. It is supplied with a fine chemical laboratory, the finest mineralogical cabinet I ever saw, and a good collection of civil engineering, mining, machine and drawing models. The drawing tables especially attracted my attention. Dr. Chanater and Mr. Cairns of the chemical department, conducted us through the School of Mines, and we renew our thanks to them for their attentions.

We had heard of the Steven's Technological Institute in Hoboken long before we reached it, and our expectations in regard to it were very great. I can truly say they were more than realized. It is a new institution, and at the time of our visit had never been opened to students. Its building was unfinished, but so far as completed, it appeared to be "ideally perfect." But probably the most striking feature in this institution is its magnificent physical apparatus. Knowing that Colonel Cunningham will make a complete description of the rooms and general equipments of this school, I will pass at once to the department of mechanical engineering, which is designed to be a specialty.

This department is under the charge of Professor Thurston, whom we had the pleasure of meeting. He seemed to be thoroughly posted on all the branches of his chair, both theoretically and prac-

tically. His course will comprise a complete study of the theory and practice of the construction and running of machines. It will be illustrated by a full set of models, and a set of working machines of the most characteristic kinds. Several of the working machines are already in place, and a number of mechanical models are on exhibition in the model room. One of these models is of great interest, being nothing less than a steam engine applied to the locomotion of a model boat, by a kind of screw propeller attachment, older by several years than Fulton's discovery. This contrivance is the invention of an ancestor of the munificent founder of the institute.

Doctor Morton, the president of the Institute, was exceedingly kind and attentive to us, both professionally and socially and gave us every possible assistance in our examination of his excellent establishment and its magnificent appurtenances. Our most hearty thanks are a poor return for his many favors.

At the office of the East River Bridge Works, I had the pleasure of meeting Colonel John A. Roebling, and visited with him the pier on the Brooklyn side, and the dredging machines preparing the ground for the caisson to be used in sinking the pier on the New York side. Colonel Roebling gave me a copy of a report of operations on the bridge works, a lithographic picture of the bridge as it will be when finished, and showed me the working drawings of construction. The stupendous nature of this engineering undertaking can hardly be appreciated at the present stage of the works. But when we think that it is proposed to span with one bay a stream over one-third of a mile in width, to have the bridge so high as not to interfere in the least with the largest vessels, to have it wide enough to give room for a double track railway, a double carriage way, and two side walks, we can begin to get an idea of the audacity of the enterprise. That the enterprise will be successful, there can hardly be any doubt.

The Central Park, in New York, has been so thoroughly described that it is needless for me to do more than notice that I walked thoroughly through its most interesting portions, inspected the beautifully finished arches of some of the bridges, and the rustic spans of others, studied the artificial and natural beauties of the lawns, lakes, walks, roads, foot paths, grottos, pavilions, and minia-

ture temples and palaces, spent an hour or more in the natural history museum, zoological garden and meteorological observatory, and went away wearied in body and almost wearied with the seeing of the beautiful and grand.

In connection with my visit to other points in New York, I will only say that the examination of an extensive lithographing establishment convinced me that we could easily utilize a small lithographing outfit in our University, and I would recommend that such an outfit be obtained as soon as practicable.

From New York I proceeded to Washington, where I was joined by Colonel Cunningham on his return from the East. We visited most of the public buildings; the Capitol, Smithsonian Institution, the Agricultural Bureau, President's mansion, Patent Office, Meteorological Observatory, War Office and Naval Observatory. General Sherman kindly gave us a note of introduction to the officers in charge of the two observatories, and we received marked attention from Captain Hongate at the Meteorological and Professor Harkness at the Naval Observatory. At the Agricultural Bureau we were very kindly received, and had a pleasant and instructive visit. At the Patent Office were many objects to interest us both in our special departments, but the difficulty of seeing them rendered our examination of them rather unsatisfactory.

Want of time prevented our visiting any of the schools of Virginia, so that we may consider our summer's tour as ended at the City of Washington.

In conclusion I beg leave to make the following remarks: During our entire journey we were received everywhere with kindness and treated with marked civility. Our hailing from the Louisiana State University was a passport to all the schools and universities we visited with but a single exception, already mentioned, where probably the reasons for refusing us admission were amply sufficient.

I hope those who were so kind to us will not think anything in this report invidious, as the very nature of our visit required us to make a comparison between the various schools that we examined. In all we found something to admire, though none seemed to be pre-eminent over all others in all departments. In comparing our own university with those I visited I think I may safely say we are keeping pace with our fellows, considering the difficulties under which

we are laboring. In 1865 nothing existed but the bare walls of its old building in the pine woods, near Alexandria. That building was entirely destroyed by fire in 1869, and yet we are in good working order and moderately well equipped for our work. Our library of eight or nine thousand volumes is well selected; our natural philosophy apparatus is equal to many we saw in much older colleges; our geological and mineralogical cabinets are surpassed by very few; our chemical outfit and laboratory are not so large as many we saw, but are ample for our purposes; our set of mathematical models is more complete than some we saw; our recitation rooms, in neatness, in black board facilities, in capacity and comfort to both teacher and pupil compare very favorably with any we examined, and we saw nowhere so fine a collection of pictures as adorn the walls of our public rooms.

If the citizens of Louisiana knew how favorably their own university compared with the older institutions of the North, and appreciated the fact that it not only owes its excellence but its very existence to your own exertions and self-sacrificing devotion to a self-imposed duty, they would be proud of their State school, and their gratitude to you would be unbounded.

I am, very respectfully,

Your obedient servant,

(Signed)

SAMUEL H. LOCKETT,

Professor of Engineering.

REPORT OF PROFESSOR JOHN P. McAULEY.

Col. D. F. Boyd, Superintendent Louisiana State University:

COLONEL—Pursuant to your instruction I have the honor to submit the following account of my travels during last vacation:

I went direct from Pensacola to New York, and stopped there only long enough to visit the Central Park and Museum. A very pleasant ten days' run across the Atlantic on the Inman steamship City of Brooklyn brought me to Queenstown, and I found myself once more on Irish ground after an absence of twenty-four years. During the following two months I visited Cork, the Lakes of Killarney, Dublin, Galway, Clifden, Westport, Sligo, Belfast, the Giant's

Causeway, Maynooth, Stonyhurst, Rugby, Leamington, Stratford-upon-Avon, Oxford, Windsor, Chiselhurst and London.

I shall confine my remarks to the educational establishments which I saw, premising that I could not have chosen a more unfavorable time to gather information of interest, as none of the schools were at work. I will begin with the colleges in Cork, Galway and Belfast, which constitute the Queen's University in Ireland, founded about twenty-five years ago. The buildings are in the Tudor-Gothic or Elizabethan style, and were erected at a cost of £100,000. As may be seen from the photographic views now in our library, they are very handsome, particularly those in Cork, which Lord Macaulay said were worthy to stand on the High street of Oxford, that "City of Palaces." In each college there are Faculties of Arts, of Law and of Medicine, and a School of Engineering. Most of the information I shall lay before you is obtained from the prospectus of Queen's College, Galway, the only one of the three to which I was able to give more than a cursory examination. In the list of professors, eighteen in number, I note the names of D'Arcy W. Thompson, the genial author of "Sales Attici," "Day Dreams of a Schoolmaster," and that "bijou" of a grammar "Scalæ Novæ, or a Ladder to Latin," and of Dr. Thomas Maguire, author of "Essays on the Platonic Ethics," an able plea for the Academy vs. Modern Positivism. The last session was divided as follows: First term, October 18 to December 23; second term, January 6 to April 1; third term, April 17 to June 10, showing a total of about seven months' work with six lecture days in the week. There is a supplementary examination at the beginning of each session for the benefit of such students as have failed to pass the previous general sessional examination—a commendable feature, as encouraging efforts to recover lost ground by private study during vacation. Fifty-two scholarships and sundry exhibitions of the annual value of more than £1600 have been established in the college; these are all tenable for a year only, so that no man may rest on his oars. The minimum amount of fees payable by students for the degree of Bachelor of Arts is: First session, £9 10s.; second session, £7 5s.; third session, £8 5s. To scholars these fees are reduced about one-half. Ordinary breaches of discipline are punished by fines. The library, the chemical and mineralogical cabinets, the museums of natural

history and of anatomy are such as one might expect from unstinted means controlled by intelligence and liberality.

I next visited Trinity College, where I had the good fortune to meet Reverend Professor Galbraith, Dr. Shaw and Dr. Webb, all of whom I have to thank for a very pleasant evening spent in their company. The University of Dublin was founded by Queen Elizabeth in 1591, under the style and title of "The College of the Holy and Undivided Trinity, near Dublin." The charter states the object of the foundation to be "the education, training and instruction of youths and students ; that they may be the better assisted in the study of the liberal arts, and in the cultivation of virtue and religion." The university enjoys, in common with those of Oxford and Cambridge, the privilege of electing two Burgesses to represent it in Parliament : the right of voting belongs to all persons who have obtained a fellowship or scholarship, or the degree of master of arts, or any higher degree, not of a purely honorary nature in the university. There are three terms : Michaelmas begins on the tenth of October and ends on the twentieth of December ; Hilary, tenth of January, twenty-fifth of March ; Trinity, fifteenth April, thirtieth of June, a total of a little more than seven months. From the schedule of fees for the degrees I learn that "Legum Doctor costs £22, and S. Theologiæ Doctor" £26. The necessary annual expenses are from £50 to £60. Students in the first and second years of their undergraduate course are denominated junior and senior freshmen ; in the third and fourth years, junior and senior sophisters. In the fifth year they are termed candidate bachelors, until they have actually taken the degree of B. A., after which they are termed junior bachelors. There are four professional schools in the university, namely : Divinity, Law, Medicine and Surgery, and Engineering.

The library, which now counts 150,000 volumes, contains, among other literary treasures, the collections of Ussher, Pallisser, Gilbert, Fagel, Quin (rich in *editiones principes* of the classics), and the manuscripts of Stearne, Huntington (Oriental), and Carewe (Irish). By an act passed in the present reign the right of obtaining a copy of every book printed in the United Kingdom is conferred on the library of Trinity College, the British Museum, the Bodleian Library, the Public Library at Cambridge and the Library of the Faculty of Advocates at Edinburgh. The Museum of Natural Philosophy,

founded in 1780, contains a collection of various philosophical instruments, chiefly in connection with the sciences of optics and practical mechanics, theory of heat, electricity and magnetism. The Museum of Zoology and Archæology contains the various families of the Mammalia, birds, stuffed reptiles and Amphibia; fish, Mollusca and Moluscoida; Anthropoda, Annuloida, Coelenterata and Protozoa; bird-skins from Asia, Africa, America and Australia; British and Indian Lepidoptera and insects, both native and foreign, of all the Orders. My notorious ignorance of matters scientific must be my excuse for not entering into a detailed description. In the Museum of Geology and Mineralogy, intended principally for the use of students in engineering, there are typical collections of minerals and fossils, and some rare specimens of fossil reptiles and deer. In the Museum of Engineering Models are found a complete collection of the weights and measures of the Metric System, models of the Boyne Viaduct, of the lifting apparatus of the Conway Tube, of a Cornish pumping engine (scale one-twelfth), of a locomotive engine (scale one-fourth), a large collection of timber bridges, and a series illustrating the progress of invention in the steam engine. In the Museum of Botany there is an herbarium, consisting of two parts, which are kept separate, namely: 1—A British herbarium, containing the indigenous plants of the British Islands. 2—A general herbarium, open to receive the plants of all countries. This latter is particularly rich in the plants of North America, British India South Africa and Australia, and less so in those of South America, North Africa and parts of Europe. The specimens are fastened on pieces of paper of uniform size, and kept in cabinets, and are classed according to the natural system; the sequence of the natural orders adopted being nearly that of Endlicher's "Enchiridion Botanicum." The Botanic Gardens contain a general collection of plants illustrative of the various natural orders, a special collection of medical plants, and of such plants as are indigenous to Britain and Ireland. The University has landed property to the extent of 199,573 acres, or about the hundredth part of the whole acreage of Ireland, and a net annual income of over £64,000. The total number of students on the College books, under the degree of M. A., on the first of January, 1871, was 1192. These two institutions, Trinity College and the Queen's University, the one essentially Protestant, the other es-

sentially irreligious, are virtually closed to Catholics, who form more than four-fifths of the population.

The Catholic University of Ireland was founded in 1850, with the object "of giving a thoroughly Catholic, and, at the same time, a thoroughly national education to youths of every class, by providing them with the means of obtaining the highest order of mental and moral culture." Its schools were formally opened on the third of November, 1854, under the Rectorship of the very Reverend John Henry Newman, D. D. The university embraces the five faculties of theology, law, medicine, philosophy, and letters and science.

Being quite destitute of any endowment or settled property, it depends for its maintenance wholly upon the alms of the Catholics of Ireland. Notwithstanding what might seem to many the precarious character of this support, yet up to the first of December, 1871, over £150,000 had been received, almost exclusively in this way, since the seventeenth of March, 1851. The session lasts from the second day in October to the second Sunday of July following, with recesses of three and two weeks at Christmas and Easter respectively. The necessary annual expenses are from £40 to £50.

The library of 25,000 volumes is rich in works on theology, canon and civil law, medical and physical science, ecclesiastical and modern European history, classical literature, archæology and ethnology.

The manuscript department contains the collection of the late Professor O'Curry, including his valuable Irish glassaries. The physical cabinet is furnished with some very valuable instruments, and with the principal apparatus required for the illustration of experimental physics.

In the museum there are among other objects of interest, specimens of the birds, amphibians and recent shells of Ceylon, and in the Archæological Department a number of Greek terra-cotta vases, found in making some excavations in the neighborhood of Athens. The chemical laboratory is fitted up for the teaching of practical chemistry, and affords every facility for the cultivation of that important and useful science. It is designed to meet the wants of three classes of students:

First—Those who intend to study chemistry for purely scientific purposes, among which may be named chemico-physiological investigations.

Second—Those who require a knowledge of chemistry for practical purposes, as agriculture, mining, metallurgy, the various chemical manufactures, dyeing, bleaching, tanning, brewing, distilling, paper making, etc., and civil engineering.

Third—Students of medicine who are required to attend one or more courses of lectures on practical chemistry.

The school of applied science includes two divisions—one of engineering, the other of technology. The engineering division embraces civil engineering (including architecture) and mining engineering. The technological division, when fully organized, will embrace the following departments:

First—Agriculture.

Second—Mechanical engineering, or the construction of machines and erection of factories.

Third—Textile technology (manufacture of fabrics in silk, wool, flax, hemp, cotton, etc., bleaching, dyeing, printing, etc., of tissues).

Fourth—Metallurgy and manufactures in metal.

Fifth—Chemical technology (manufacture of acids, salts, glass and ceramic wares, tanning, brewing, distilling, soap making, lighting, etc.).

Sixth—General commerce.

The University does not, of course, pretend to teach all these arts or any of them. What it proposes to do is simply to give such direction to the studies of those of its students who intend to take up any of the branches of trade just specified as will prepare them to apply scientific principles to the management and improvement of their business. During the last session the total number of students in arts in actual attendance on lectures or pursuing their higher studies in the twenty-seven colleges connected with the University, was about three hundred and fifty.

St. Patrick's College, at Maynooth, was founded in 1795, by an act of the Irish Parliament, for the education of the Catholic priesthood. The very Reverend Dean Hughes kindly showed me through the college and grounds. The buildings—the more recent from designs by Pugin—comprise a church, a library, halls, schools, lodging houses and offices suitable for the accommodation of professors and five hundred and twenty students. The faculty consists of a president, four deans, four professors of moral and dogmatic

theology, professors of sacred scripture and Hebrew, ecclesiastical history, logic, metaphysics and ethics, natural philosophy, rhetoric and belles lettres, English literature, French literature and Irish.

Stonyhurst College, about five miles from Clitheroe, Lancashire, is conducted by Fathers of the Society of Jesus. Here, on presenting your letter, I received a most hearty welcome, and under the guidance of Father Everard went through the whole establishment, seeing something to admire at every turn. In fact, I gave myself up so thoroughly to the enjoyment of this visit that I collected no dry facts and figures, and can only record the general impression I got, that Stonyhurst is my "beau ideal" of a college.

Rugby School dates from the year 1567, when Lawrence Sheriff bequeathed for the foundation of a free school and almshouse certain property in Warwickshire and Middlesex, then producing £24 13s. 4d. a year: the annual income from this source now amounts to something over £5000. The present buildings were completed in 1815; the Master's House is specially interesting as having been, from 1827 to 1842, the home of the great and good Dr. Arnold. The faculty consists of the head master, twelve assistant classical masters, five mathematical and natural science masters, two modern language masters, two drawing masters, a writing master and a music master. Strange to say, though Rugby supplied many eminent head masters to other schools, no Rugbeian has ever been elected head master of Rugby. The head master, with the assistance of two composition masters, teaches the sixth form, the highest class in the school, and at times examines all the other forms. He has a salary of £2957, in addition to a handsome residence, good garden and four acres of pasture ground. The assistant classical masters have for many years, by the custom of the school, been graduates of Oxford or Cambridge. All the assistant masters are called together once a month by the head master, to discuss matters of importance connected with the administration of the school—a practice begun by Dr. Arnold. Their salaries range from £1617 to £286. Provision is made in special cases for the maintenance of such of the teachers as are removed on account of old age or infirmity.

The school is divided, for teaching purposes, into five parts. The highest consists of the sixth form, with about forty-five boys. The next is the upper school, containing four forms, or about 135 boys;

the upper middle school, 140; the lower middle school, 130; the lower school, fifty. The average ages of the boys in these five divisions are eighteen, seventeen, sixteen, fifteen, fourteen respectively. There are four schools, classical, mathematical, modern languages, and natural philosophy. A boy's promotion in the classical school depends on mathematical proficiency to the extent of twelve marks in the hundred. The study of French is begun on entering, and German is taken up as soon as sufficient progress has been made in French.

In the natural science school lectures are given twice in the week to each class. Notes taken at the time of the lectures are subsequently expanded into reports drawn up by the boys out of school. These are shown up once in a fortnight at least, and are then corrected by the lecturer. The time allotted to attendance in the school-room each week amounts on an average to seventeen hours for classical work, three for mathematics, and two for modern languages. There must be added to this the time required for preparation of lessons and for composition. A distinguished Rugby scholar considers eight hours the time given on a busy day by a studious boy to his studies.

Five exhibitioners are chosen every year to fill five exhibitions of the several values of £80, £70, £60, £50, and £40, tenable for four years, on the single condition of residing at some College or Hall in Oxford or Cambridge during that time. They are selected from the students most proficient in Divinity, Classics, Mathematics, History, Natural Science and Modern Languages. The discipline of the school is in a great measure maintained by the Sixth Form boys. There are three half-holidays in the week; every third week there is a fourth. The vacations are two: seven weeks at Christmas and eight weeks after midsummer. The Bill of Fare is: Breakfast, tea or coffee and bread and butter; dinner, meat and vegetables, sometimes preceded by soup; tea, same as at breakfast; supper, bread and cheese. The necessary annual expenses are about £100.

The University of Oxford is a corporate body known for ages by the style or title of "The Chancellor, Masters and Scholars of the University of Oxford." The colleges are distinct, corporate bodies, founded at various times for the purposes of study and education, within the University, but independent of it, and governed, as to

their own concerns, by their respective statutes. The halls do not differ materially from the colleges. There are twenty colleges and six halls, the oldest, University College, dating from 1253. Each college consists of a Head, a body of Fellows, and generally of scholars also, besides various officers or servants. In most colleges the Head is elected by the Fellows; the Fellows and scholars are chosen by the Head and Fellows after a competitive examination. The value of a Fellowship ranges from £700 to £100 a year; that of a Scholarship from £100 to £20. The tutors, who conduct the education of the students, are selected from the Fellows. The University returns two Burgesses as its representatives in Parliament. There are forty-seven professorships. The student, on entering college, pays a matriculation fee of £2 8s., and is assigned to the superintendence of some one of the tutors. The instruction is directed solely to the preparation for taking a degree, and consists of catechetical lectures, mixed with reading and discussion, on a portion of some classical or mathematical book in common use at the University examinations. The session begins on the 10th October, and ends on the Saturday after the first Tuesday in July, with intermissions at Christmas and Easter that reduce the Academical year to about seven months. Five schools are established, viz : Theology, Literæ Humaniores, Mathematics, Natural Science, Law and Modern History ; a certificate from two of these, of which the Literæ Humaniores must be one, is required for a degree. Candidates for the degree of B. A. are required to pass three distinct examinations: 1. Responsions, before the Masters of the Schools; 2. The first public examination, before the Moderators; 3. The second public examination, before the Public Examiners. They are all conducted partly *viva voce*, partly in writing. At the second public examination every candidate in the Classical school must be examined in Divinity, and in one Latin and one Greek author at the least. The term Divinity comprises the four Gospels and the Acts of the Apostles in Greek, the history contained in the Books of the Old and New Testaments, and the subjects of the Books, the Thirty-nine Articles, and the Evidences of Religion. Of the two authors, the one must be a philosopher, the other an historian.

The examination consists of passages set for translation into English and for construing, and of questions to be answered both

on paper and orally. Candidates for honors may bring in one or more of the Apostolical Epistles, with or without some part of ecclesiastical history, and any classical writers on history, rhetoric, the art of poetry, and ethical or political science; in connection with ancient history, they are examined in chronology, geography and antiquities, and they may be called upon to compose in Latin and Greek, as well as in English. With candidates of the first two classes, logic is indispensable. Candidates for the highest honors in classics usually bring in most of the following books: Of Aristotle, the Nichomachean Ethics, the Politics. Of Plato, the Republic, Herodotus, Thucydides. Of Livy, ten books. Of Tacitus, the first six books of the Annals, the Histories. In the mathematical school, every candidate must be examined either in the first six books of Euclid, or in the first part of algebra, which includes quadratic equations, indeterminate equations, ratio and variation, the three progressions, permutations and combinations, the binomial theorem, continued fractions, and easy questions in the theory of numbers, but not the theory of equations.

Candidates for the highest honors in mathematics usually begin in mechanics, including dynamics of material systems, hydromechanics, optics and astronomy. In the school of natural science every candidate must be examined in the principles of two out of these three branches of natural science, mechanical philosophy, chemistry, physiology, and further, in some one of the particular sciences dependent on mechanical philosophy. Candidates for honors must be examined in the principles of all the three branches of natural science named above, and are required to be well acquainted with some one of the particular sciences which fall under one or other of them, viz: mechanics, hydrostatics, pneumatics, sound, light, heat, electricity, magnetism, geology, physical geography, botany, zoology, and mineralogy. A Batchelor of Arts can proceed to the degree of Master of Arts without further examination or exercise, provided he has had his name on the books of some college or hall for a period of twenty-six terms from his matriculation. Before admission to this degree every person is required to make and sign a declaration of assent to the thirty-nine articles and to the book of common prayer.

When the examinations are ended, the names of those who have

distinguished themselves by passing a good examination in a wider range than that necessary for a mere degree are distributed according to their position in the schools. In each school the successful candidates are arranged in four classes, according to merit. The number of pass-men is given, but their names are withheld. The whole expenditure of such students as live on the most economical scale is estimated at from £150 to £250 a year. The students dine together in the college hall, but take their other meals in their own rooms. In 1870, there were 569 matriculations, 222 masters of arts, and 402 bachelors of arts. The principal institutions belonging to the university proper are the Bodleian Library, the Clarendon Press, the Sheldonian Theatre, the Ashmolean Museum, Radcliff's Library, the Radcliffe's Observatory, the Taylor Institution, the University of Galleries, and the University of Museum. The Bodleian Library, opened to the public on the eighth of November, 1602, comprises more than 300,000 volumes of printed books, and about 22,500 volumes of manuscripts. The collections of "editiones principes" of the classics, and of oriental manuscripts are not surpassed by any in Europe.

The picture gallery, connected with the library, contains portraits of nearly all the eminent persons who have been benefactors or members of the University, and models of many edifices, both ancient and modern. The Clarendon Press is, with one exception, the largest and most complete printing house in the world; the buildings occupy two acres and a half, and form a square, with a splendid gateway modeled after the arch of Constantine at Rome. The south side is appropriated to the printing of bibles and prayer books; the north to that of classical works, university documents, etc.

The Sheldonian Theatre, modeled on that of Marcellus at Rome, was built by Sir Christopher Wren. It is used for the solemn assemblies of the University, and can contain four thousand persons. Here are deposited the Arundel marbles, and a valuable collection of coins, medals, manuscripts and paintings. The books belonging to Radcliffe's library have been removed to the University museum. It is now used as a reading room, in connection with the Bodleian, and is beautifully fitted up with casts, busts and statuary. The Radcliffe observatory comprises a dwelling house for the observer, apartments for observation, and for a library, and is amply supplied

with astronomical instruments. Observations are made daily, and published annually.

The Taylor Institution was established for the cultivation of the French, German, Spanish and Italian languages. The University galleries contain specimens of ancient and modern sculpture, the original models for Chautry's principal works, a large number of original drawings of Michael Angelo and Raffaele. The museum, intended for the promotion of natural science, was finished in 1860. It contains lecture rooms, with work rooms and laboratories, where these are required, for the professors of Medicine, Geometry, Astronomy, Natural Philosophy, Chemistry, Mineralogy, Geology, Physiology and Zoology, a dissecting room, a laboratory for students in Chemistry, a library and a reading room.

Various collections, illustrative of subjects studied in the museum, have been brought together within its walls. A Pathological series; models and instruments for Experimental Physics; Minerals; Fossils; a Physiological series; Zoological specimens; Shells, and Invertebrate animals.

In conclusion, I have only to express regret that my visits were made in so hurried a manner and at so unfavorable a time. What I learned from personal observation is of small practical use to myself, and of still less to others, so that in preparing this report I have done little more than transcribe from the Dublin and Oxford University calendars for 1871, Howard Staunton's "Great Schools of England," and the Encyclopedia Britannica.

I am, very respectfully,

JOHN P. McAULEY,

Professor of Latin.

Louisiana State University, December 8, 1871.

REPORT OF PROFESSOR F. V. HOPKINS, M. D.

BATON ROUGE, December 26, 1871.

Colonel D. F. Boyd, Superintendent Louisiana State University:

SIR--At your request, I took the opportunity afforded by a trip that I was obliged to make to the North, to examine the libraries, apparatus, cabinets and laboratories of such colleges as my route

took me near, for the purpose of making suggestions as to our own wants. Comparison with these institutions by name might seem invidious, but I was gratified to become convinced that in most of these particulars we are better supplied than the majority of our collaborators at the North. There were some, however, that, while falling short of our advantages in certain points, excelled us in others, and we should imitate them as follows: First, as to libraries, there are few so largely composed of new and readable as our own, but in several a strict system has been observed in their compilation that renders them better suited to the wants of the thorough student, if less amusing to the general reader. I would suggest an effort at procuring *all* the standard works mentioned in books on English literature, as well as a great extension of the means of studying special branches of science. In geological works, we are comparatively complete, though we yet lack many indispensable reports. In natural history we are deficient in the works of the most eminent European writers. Even Goldfuss de Blainville and Milne Edwards are not yet found upon our shelves. Reeves and Sowerley, Holmes and Lea, and many others are wanting in our conchological list. In medicine we possess a good selection, although there are many others that we should have. But the subject of books is inexhaustible in itself. I leave it with the remark that it is mainly in the possession of ancient and curious and modern scientific works that we are excelled by our older universities.

The subject of Apparatus is also extensive. In astronomical appliances we are sadly deficient, although many are worse off than ourselves. In natural philosophy and chemistry we hold our own better. But at a few laboratories they now have arrangements for class instruction in analysis and practical chemistry far ahead of anything that we can yet boast. I would earnestly recommend the immediate introduction of these latest improvements. They will require another apartment as large as the present chemical recitation room, fitted up with about two dozen desks or counters, each of which should have its drawers and shelves for reagents, and at least two Bunsen's filtering apparatus, besides gas burners, and washing place with water. In the centre of the room should be a large furnace with drying chambers, sand baths, distilling apparatus, etc. The one I saw that appeared most suited to the purpose was by

Philips, of Providence, R. I., and cost \$700. The counters are worth about \$25 or \$30 each. Apparatus and reagents should be supplied to the students systematically, and they should be charged with the cost of all that they use and break. A system of fines, moderate in amount, but strictly enforced, is found to be a good method of making each student keep such things as are in common use in their proper places. At the Sheffield Scientific School of Yale College there are also rooms devoted exclusively to assays. The basement rooms in the south wing of our present building could be used for that purpose if it should become advisable to instruct our classes together in so special a branch. Less complete arrangements could be made equally efficient by allowing the students to use them in succession.

It is the most important to complete our analytical laboratory, since the advanced students could be profitably made use of in examining the marls, lignites, etc., collected in the Geological Survey, thereby saving the expense of chemical assistants, which will otherwise be required.

As to our cabinets, they appear to be much better than the average. They suffer great injustice, however, for the lack of room for their proper display. The Wailes collections, which formed the whole museum of Jefferson College before the war, added to the accumulations of the Botanical, Topographical and Geological surveys, and those of the University proper, among which may be mentioned a cabinet of three thousand stuffed birds, place us in advance of the majority of our rivals in this respect. There is room for improvement, however, in that accurate classification which can alone render a large number of specimens of use to the student.

Our cabinets have been gathered so rapidly that, although, each new acquisition is classified by itself, yet the separate subjects studied in connection with them often run through several divisions. Thus our minerals are partly in the laboratory and partly in the Waile's cabinet, at the other end of the building; our fossils partly in the survey cabinet, partly in the laboratory and partly in the Waile's cabinet again. The cause of this is a natural desire on the part of the University to keep the Waile's collection together, as a sort of monument to the memory of that great and good man, who was one of the ablest and earliest pioneers of scientific research in

the South. The only possible way to combine this excellent purpose with the more ordinary one of rendering all of our cabinets accessible and useful to the students, would be to place all of our specimens in one large hall. The illustrations of each subject could then be placed together, and the Waile's collection being the nucleus of the whole, the *tout ensemble* would form a nobler memorial than his by itself ever can. The obvious objection to this arrangement, that at present we have no such hall, will I trust be removed in time.

These are the only suggestions that occur to me, after a careful comparison of our resources with those of other colleges. Considering how young our institution is, and the severe disadvantages under which it has labored from the start, we have reason to be proud that we stand as well as we do.

Yours very respectfully,

[Signed]

F. V. HOPKINS, M. D.,

Surgeon and Professor Chemical, Minerals and Geology.



THIRD ANNUAL REPORT
OF
Botanical Survey of Southwest and Northwest Louisiana,

MADE DURING THE YEAR 1871,
American
By PROFESSOR A. FEATHERMAN.

LOUISIANA STATE UNIVERSITY,
January 7, 1872.

Colonel D. F. Boyd, Superintendent of Louisiana State University:

OBJECT AND EXTENT OF THE SURVEY.

In accordance with the intention of the law enacted by the Legislature, authorizing the survey of the State for the purpose of ascertaining the physical resources of Louisiana in an economical as well as scientific point of view, I herewith submit to you the third annual report of the Botanical Survey, comprising Southwest and Northwest Louisiana, regions of country which have probably never before been botanically explored. As a great number of plants growing during the summer months were collected last year, I deemed it indispensably necessary to make an excursion during the spring to enable me to fill the deficiency of early flowers, of which our supply was but limited as regards locality, for Baton Rouge and vicinity were the only parts of the State that had been explored during the spring season. I therefore visited late in April the prairie regions of St. Landry and Calcasieu, the extensive pine flats of Calcasieu, and the pine hills of South Rapides, and I was fully compensated for the difficulty I encountered in the almost impassable roads, by the collection of a spring flora of great interest, and a number of specimens of rare occurrence elsewhere.

On my trip in northwest Louisiana during the summer months I passed through the parishes of Caldwell, Ouachita, Morehouse, Union,

Claiborne, Webster, Bienville, Red River and Natchitoches. As I travelled in a carriage, I had an opportunity of observing, not only the botanical character and the agricultural capabilities of that part of Louisiana, but also its geological features; and I have endeavored to supply, by my labor, botanical specimens for the herbarium, as well as geological specimens for the cabinet.

The botanical excursion of this summer nearly exhausts the summer vegetation of this State. It is true that a number of new specimens might occasionally be found in various parts of Louisiana during the months of July and August, for no collector can visit every locality where some rare specimen may not sometimes be met with, but such chance specimens would not justify the labor and expense of an excursion for collecting purposes.

If it is intended that the botanical survey shall be continued for another year, the collections must be made during the months of April, May and June, and some new specimens might be collected as late as the month of October. But no great harvest of supplies could be expected at any time, as the range of the collector is necessarily limited, no matter in what direction he may start out on his excursions.

To collect the entire flora of Louisiana, including flower-bearing and non-flower-bearing plants, would require many years and numerous assistants and contributors in every parish of the State. No single botanist could alone accomplish this object. The university herbarium comprises about two-thirds of all the flower-bearing plants that grow in Louisiana; but the cryptogamous flora, which constitutes the most difficult branch of botanical science, is far from being as full as the phænogamous, and especially the classes of fungi and algae, the number of which exceeds perhaps that of all others, are but partially represented on account of the difficulty of preserving them, and the still greater difficulty of studying them; for they are mostly microscopic plants, and are not described, as a class, in any standard botanical work which might be used for convenient reference.

The botanical collections already made comprising about fifteen hundred specimens, and belonging to every class of which the vegetable kingdom is composed, have been arranged and classified in scientific order, and no specimen of plant, however attractive, has

been admitted to make a part of the university herbarium which is not identified and whose individuality has not been determined.

In this arduous and difficult work I have been aided by Dr. A. W. Chapman, formerly of Jacksonville, Florida, the author of the best and most complete Southern Flora ever published; also, by the labors of my friend ~~Col~~ F. Austin, Esq., of Closter, New Jersey, in the determination of the mosses and lichens. In the department of mycology I take pleasure to acknowledge the valuable assistance of the Rev. M. A. Curtis, D. D., of Hillsborough, North Carolina; but I am more especially indebted to Professor H. W. Ravenel, of Aiken, South Carolina, a mycologist of great reputation, for the eminent services rendered to me in this branch of botany. To the kindness of C. W. Wheatley, Esq., of Phoenixville, Pennsylvania, I owe the determination of the unios collected in Louisiana.

A botanical excursion during the coming spring in the Southern parishes of the State will close the labors of the botanical survey of Louisiana. It would be desirable that the final report should include all previous reports, with the necessary revision to make it a uniform and continuous production; and if neatly printed and bound, it would form a small book of permanent value in a local as well as scientific point of view. I trust you will be authorized to accomplish this object by the specific appropriation of means for this purpose.

BOTANICAL, AGRICULTURAL AND GEOLOGICAL FEATURES OF SOUTHWEST LOUISIANA.

In undertaking a scientific tour of explorations, it would be prejudicial to the object proposed to be confined to a single branch of science, or to be limited in the range of observation to a single subject of inquiry. On the contrary, it is proper and even desirable that the student of nature, who investigates the great volume in which the finger of God has traced natural objects and natural phenomena with the utmost fidelity and exactness, should be permitted to extend his investigations to all kindred branches of science which have a natural connection with each other.

I must therefore be pardoned for encroaching somewhat upon the department of a fellow professor, who is fully able to do justice to his own branch of the survey, not with a view of furnishing a

treatise on the geological formations of the State, but merely to make a succinct statement of what I have seen and what deductions I draw from these partial observations, without, however, claiming any authority for the views I may advance.

During my excursion in the spring I had occasion to travel in a carriage and at my leisure through the extensive prairie regions of St. Landry and Calcasieu, and I could not fail to be struck with the marked difference that existed in the nature of the surface prairie soil of the two parishes. The St. Landry prairies, from Opelousas to Ville Platte in a northern direction, and from the same place westward toward Bayou Cannes, possess nearly the same fertile quality, and are probably composed of the same chemical elements as the marsh soil of the Gulf coast and the Teche country; while the Calcasieu prairies proper, from Nez Pique to Lake Charles, are sand barrens, resting upon a yellow loam of the bluff formation, and covered by a thin crust of vegetable mould and a thin layer of marsh soil. In some low places the marsh soil is quite equal in depth to that of the St. Landry prairies, and these fertile spots form fruitful oases in the midst of a sandy desert. During spring, wherever the dead vegetation has been burned, these sand prairies present a green carpet of grass undulating in every direction, and interspersed here and there with circular sand mounds, adorned with the greatest variety of bright colored spring flowers. The prairies are dotted with the rose-tinted *Gaura lindeheimeri*, which is one of the largest and most beautiful of the species, and although common in the Texas prairies is not met with anywhere else in this State. The *Castilleja coccinea* decks the surface for some distance with scarlet and purple, while the eye meets everywhere the blue-flowered clusters of the *Scutellaria integrifolia*. The *Callirhoe papaver*, with its cup-like purple flowers, and the *Trifolium reflexum*, with its heads of beautifully tinted corollas, as well as several species of pink *Polygalas*, are conspicuous on the sand mounds. The marshy low grounds are clothed in blue and yellow by the *Sisyrinchium Bermudiana*, the *Iris versicolor* and the *Ranunculus Texanus*. In the St. Landry prairies the most numerous plants are the *Cacalia ovata* and the *Polytaenia Nuttallii*, which do not occur in the Calcasieu prairies. The *Psoralea melilotoides* and the *Erigeron tenuis* are common to both regions.

This difference in vegetation confirms the difference of soil as already pointed out, and the question presents itself: what is the probable difference in the geological formation of these two contiguous regions of country, which apparently have both been exposed to the same natural causes in the formation of the surface level, and both rest upon the same brown loam of the bluff? The only plausible solution that I can give to this question is, that the St. Landry prairies were formed like the marsh lands of the Attakapas country, from the gradual deposits of finely comminuted materials suspended in the water of the gulf marshes, and composed of lime, clay and sand and decayed vegetable matter. These prairies have been redeemed from the gulf marshes at a much earlier period than the Calcasieu prairies, and their surface soil was formed not by the gradual recession of the gulf shore or by sudden overflows and the rapid rise and subsidence of the tides, but by a calm surface of marsh water slightly disturbed only by the periodical flux and reflux of the waters of the gulf.

On the other hand the Calcasieu prairies were formed by the sinking of the gulf bed and the gradual contraction of the shore line, as well as sudden periodical tidal overflows of the gulf waters agitated by the winds and in constant motion, depositing only the heaviest materials, and sweeping there by the force of the waves the coarse-grained sand slightly intermixed with clay and lime ingredients.

In low places the waters accumulated from sudden inundations, remained stationary until they were evaporated, leaving behind the soil material which they held in suspense, which accounts for the fertile spots in a sandy country.

In other words the undulating surface of the Calcasieu country was an insuperable obstacle for the encroaching tide waters of the gulf to form marshes; but as the gulf shore once extended to where the Calcasieu river divides into two branches, it gradually receded by the sinking of its bed, and the waves and tides dashing towards the shore left every where a layer of sand, until the whole country from the Nez Pique to the low grounds where the gulf marshes commenced became a sandy plain, now covered by a crust of vegetable mould produced by the accumulation of decaying vegetation continually reproduced for thousands of generations.

In confirmation of the theory that the Gulf extended, within a

comparatively recent period, to the forks of the Calcasieu river, it may be stated that a mile and a half above Lake Charles, at Nix's ferry, the banks of the river which are composed of the yellowish brown loam of the bluff formation, contain at the depth of from three to four feet, numerous oyster shell deposits apparently of recent type, almost in their natural state, a few of them being incrustated with barnacles. The same shell deposit also exists at Gossport, where oyster shells were found at a very shallow depth in digging a well at some distance from the river banks. An addittonal proof to sustain the position assumed, is the well known fact that the banks of Lake Charles, composed of yellow loam, which in some places are from twenty to thirty feet above the level of the lake, are partially made up of the brackish water shell peculiar to the outlets of the Gulf, called *Gnathodon cuneatus*, in a fossil state; and that the same bivalve shells are now found in a living state in Lake Charles itself in considerable quantity, being supplied with the necessary ingredient of salt water by the rising of the tide, the effect of which is slightly felt at the lake shore. The most remarkable anomaly presented in the connection is the fact that the *Unio trapezoides*, the *Unio nodulosus*, and the *Unio apiculatus*, essentially fresh water shells, are found associated with the salt water *Gnathodon* at the shallow bottom of the lake, about a hundred yards from the shore.

This proves beyond all doubt that the yellowish brown loam, underlying the Calcasieu prairies and the pine flats, and which does not present anywhere distinct stratifications, is of marine origin, and must have been deposited by the waters of the Gulf, at the time the shore line commenced to contract, leaving behind a layer of sand, thrown out by the action of the waves dashing against the shore.

From Nix's to Richie's ferry, which is on the west fork of the Calcasieu, the road passes, for a distance of four miles, through a narrow strip of swamp land, rich in the composition of its soil materials, and very heavily timbered. Here are found the swamp chestnut, oak, beech, hickory, magnolia, sweet gum, locust, and here and there a cypress; all of very large size.

On the north bank of the west fork the pine woods commence, and continue as far as Bayou Rapides, where the pine hills gradually slope down to the Red river bottom lands.

The Calcasieu prairies are every where interspersed with circular

sand mounds, and their mode of formation is still a mystery to the geologist. The theory has lately been advanced that their formation is due to the action of gases in the inferior strata, which formed a kind of crater throwing up the sand from beneath. But this explanation is by no means satisfactory. It is well known that all vent holes for the exit of gases, as well as volcanic scoria, are generally in the form of a funnel, and as sand is of a shifting character, its surface would not assume a convex form where the funnel is broadest, but it would present the shape of a concave ^{cap}, the center column of sand being drawn downward by the force of gravity through the narrow tubular end of the funnel, while the broad upper part of the funnel would support the layer of sand in position in proportion to its greater or less obliquity. But the shifting central column must necessarily fill the space left vacant by the subsidence of the upward pressure of the expanding gases, for we have no evidence that these elements, if they ever existed, are in active force now. I think it would be almost as reasonable to suppose that these mounds were formed by whirl-winds like snow drifts or mountain-like waves, and were afterwards fixed in their position by the vegetation which subsequently sprung up, which bound together, as it were, the shifting sand grains, no longer exposed to the disturbing action of the winds.

I have seen no animals of any kind in the prairies, except snipes and a few other prairie birds, and some land terrapins. I was struck, however, by the very remarkable fact that I had not met with a single freedman, either in the road, the Creole houses, or the field, after traveling a distance of ninety miles. The only exception to this was a colored family residing about seven miles from Lake Charles, who cultivated a piece of land on their own account.

The creoles and their boys not only do their own plowing and planting, but the poorer creole women also work. They go generally barefooted, wear colored handkerchiefs on their heads, cook, spin, weave, sew and knit, cut wood, make fires, nurse the babies, and do all other household work. The settlements are so scattered, and the houses so far distant from each other, that there is hardly a schoolhouse or a church to be seen anywhere. There is no post office between Opelousas and Lake Charles.

A rapid influx of an industrious population would soon change

the face of this whole country, but such a result can only be realized by the construction of a railroad, traversing the whole length of the prairie region of St. Landry and Calcasieu.

The pine flats of Calcasieu, covered with the *Pinus australis*, present the same soil ingredients as the sand prairies, and their botanical features are almost identical. Here the *Marshallia lanceolata*, the *Aletris farinosa* and *Aletris aurea*, the *Acerates paniculatus*, the *Hymenopappus scabiosaeus* and several species of *Baptisias*, as well as the *Erigeron strigosus* are the predominant forms of the spring flora. The subsoil is composed of a sandy layer, which rests on a bed of yellow loam, and is covered by a thin crust of vegetable mould.

The pine flat forests are without underwood, and the grass grows there as luxuriantly as it does in the sand prairies, and they afford excellent pasture ground for live stock. Their level surface is broken every nine or ten miles by creeks and bayous and other small water courses, which form what the natives call *hummocks*, and are fertile spots enriched by the sediment deposited during the prevalence of high water in the spring. They are for the most part occupied by small farmers, who cultivate a small patch of corn and cotton, and other agricultural products, but who make the raising of live stock their principal business.

It is a question of some interest which presents itself in connection with the pine flats and the sand prairies. If they belong to the same formation, and are composed of the same soil materials, what natural causes were at work which covered the pine flats with an abundant growth of the loftiest trees and left the contiguous prairies unoccupied by forest growth? The reason of this difference becomes apparent, I think, from the following considerations:

The pine flats were, probably, some thousands of years ago in the same condition as the prairies are now. Being situated on a higher level they were redeemed from the receding Gulf shore at a much earlier period, and as their northern boundary touches the pine hills of the drift period of South Rapides the winged seeds of the long-leaved pine were gradually disseminated throughout that region by the winds, until a thick pine forest had covered the whole country now constituting the pine flats. The pine forest would continue to spread slowly but surely until the whole of the Calcasieu prairies is

overgrown with it, were it not that partial settlements have within the last fifty or a hundred years interrupted its progress, by the annual burning of the dead prairie grass, which consumes at the same time the young pine sprouts that would otherwise spring up annually. This is also the reason why the pine woods are generally clear of young pine trees, because they are destroyed by the fires kindled to burn the pine leaves, which cover the ground and prevent the grass from sprouting. In addition to this, the grazing of numerous herds of cattle in the prairies as well as the pine flats, contributes much to produce the same result, for late in the summer and in early fall, after the grass has seeded, and its tops are dry and withered, the cattle not only nip the young grass, but also the pine sprouts, that may accidentally show themselves above the surface, and by this means their further growth is prevented.

The pine lands, which take their beginning from the north bank of the west fork of Calcasieu river, extend a hundred and fifteen miles from south to north in the direction of Alexandria, and seventy miles from east to west, from the edge of the St. Landry and Calcasieu prairies to Sabine river, which is the boundary line between Louisiana and Texas.

This extensive pine region embraces over eight thousand square miles of land, and the pine flats form one of the best ranges for live stock that can be found within the limits of the State, for there the grass is almost as thick and luxuriant as in the prairies, and they are almost preferable for pasturage, because the top-branched trees afford considerable shade, and protect the stock from the excessive heat of the sun, while the creeks and bayous are far more numerous, which serve as convenient watering places for cattle.

In the low grounds, the creek bottoms, called hummocks, are rich, but they are for the most part, slovenly cultivated in corn or cotton. Whenever the traveler reaches one of these water courses, however insignificant in size, he will find deep gullies and steep, sloping banks, which must be passed at considerable risk of upsetting or of being balked in a sticky, tenacious mud. Here the pine suddenly disappears, and the character of the vegetation changes altogether. On a strip of land not exceeding a quarter of a mile in width, bordered by pines on both sides, the sweet gum, black jack, post and red oak, hickory, mock orange, the *Ilex Virginica* and the *Viburnum nudum*, present quite a contrast to the dusky green of the pine forest.

The pine flats terminate near Burdick's creek, about fifty-five miles from Lake Charles, and sixty-five miles from Alexandria, and there the pine hills commence. The character of the vegetation changes but little, except that the *Liquidosculus stimulosus* and the *hymenapappus scabiosaeus* are most flourishing in this region of country. Here is the terminal line of the bluff formation, and the orange sand hills begin.

The orange sand formation is peculiar to the Southern States, and it was probably formed during the same geological period as the northern drift. It is now generally admitted that the northern drift is due to the sliding action of glaciers descending from lofty mountains and transporting to the valleys the detritus of rocks, and large, enormous boulders embedded in the ice. The orange sand, on the other hand, is diluvial, and seems to be the result of mountain torrents, which on the breaking up of the winter ice, swelled their volume to an enormous extent, and the water, in the rapidity of their currents, swept along the sand and pebbles, while the larger rocks and small boulders formed the ballast of ice masses broken loose from the mountain range. There is really no true drift formation in the Southern States, except that the age of the diluvial orange sand corresponds to the northern drift period.

The orange sand deposit of North Calcasieu and South Rapides is principally composed of bright red clay, graduating into light yellow and white, and alternating with extensive stretches of sand hills, the sand being of all colors, from deep orange to pure white, intermixed with small water-washed pebbles of opaque quartz, jasper and horn stone. Neither fossiliferous pebbles nor boulders of any kind are to be seen in these pine hills. The iron stone, so abundant in North Louisiana, is entirely wanting.

In an agricultural point of view, the long-leaved pine which grows here to a gigantic height, if made subservient for the production of turpentine, would furnish the most valuable commercial staple of this part of Louisiana. The country is however too thinly settled for this purpose, and small farming communities are found only on the bottom lands all along the water courses, which will yield good crops, sufficiently remunerative to those who labor with their own hands, and are not dependent on the hired labor of the freedman. The hill lands are poor, and as they are washed out into deep gullies

by the rain in a few years, the surface soil is swept off, and nothing is left but the barren clay, mixed with pebbles and sand.

The aspect of the country through the pine flats of Calcasieu and the pine hills of South Rapides is gloomy and desolate in the extreme. The roads are mere narrow paths, hardly passable in a vehicle, and the numerous water-courses present steep and almost impassable banks, unprovided with bridges. Settlements are scarce and are found only at long intervals. Frequently no house is seen on the road within a distance of fifteen or twenty miles, and when a human dwelling suddenly looms up, on approaching nearer it is found to be an old dilapidated log cabin, with a few rooms serving as kitchen, dining and sleeping apartment. But no matter how poor the accommodations may be, the pine woods man never turns a traveler away, and gives him the best he has, for which he naturally expects compensation, for money is scarce in those parts, and a few dollars will at least procure some luxuries not generally indulged in by these primitive people.

It has been said by an eminent writer that the degree of civilization of any country may be determined from the condition of the public roads. This pseudo-philosophical axiom finds its application, at least, partially, in the pine woods country of southwest Louisiana, for what is called the military road is the most arrant cheat, to deceive the traveling public with a high-sounding name. I will state for the information of the traveler that he must not imagine that this so-called military road, constructed by the authority of the Federal Government, at a probable cost of half a million, bears any resemblance to the celebrated Roman roads, which are to this day the finest roads in the world, but he must all at once make up his mind to exert his utmost skill in driving, in order to avoid the most dangerous water-washed gullies, leaving hardly sufficient room for a carriage to pass, with a succession of steep, sandy hills constantly rising before him, and numerous water-courses, most of them without bridges, whose approaches are of a swampy nature, deep-rutted and boggy, and whose banks descend by an almost perpendicular slope of from six to ten feet, while the ascent is correspondingly abrupt.

There is no post office between Lake Charles and Alexandria, a distance of one hundred and thirty-five miles. The Postmaster

General probably looks upon the people of the pine lands as outside barbarians, hardly included within the limits of the United States. There are no schools or school houses of any kind in this region of country, at least as far as my information goes.

Some of the stock raisers who have from two thousand to three thousand head of cattle branded and running in the woods, have not corn enough to furnish feed to their own riding horses, who are kept alive by grazing, and even the corn necessary for the supply of their daily bread has frequently to be purchased from some more fortunate neighbor, or has to be sent for from Lake Charles or Alexandria. When these stock raisers sell a portion of their cattle, they are not silly enough to buy articles of luxury and comfort to make home agreeable, but they go to Texas, and invest their surplus funds in the purchase of additional stock. They live in an extremely simple style, that the city people may receive their daily rations of meat, which they would not touch "even with their little finger." These people are certainly a curiosity in their way; and they make themselves very useful to the idle consumers for whose benefit they spend a life of self-denial and commendable temperance.

In a country like this, where the people are contented with their lot, and are fully impressed with the conviction, that "we want but little here below," where the luxuries of life are unknown and consequently unappreciated; where a man counts up his wealth by the number of calves he brands every year; where the use of coffee without sugar is the nearest approach to the refinements of society; where whole families live in rude log-cabins, containing but one or two rooms, civilization does not exist in an advanced state, and improvement is out of the question.

But this country possesses one redeeming feature, crime and vice are unknown here, and these people are simple-minded, uncorrupted and honest.

What this part of Louisiana principally needs is a railroad, post-offices, schoolhouses, and an industrious, energetic population. This is the land for the poor white man who is accustomed to work. The climate is healthy, mild and pleasant; a cool breeze is constantly blowing from the prairies. Land can be entered at ten cents an acre, with enough hummock land attached, to make a snug little farm. Stock-farms, conducted upon system, could be made very profitable in these grassy pine-woods pastures.

BOTANICAL AGRICULTURAL AND GEOLOGICAL FEATURES OF NORTHWEST LOUISIANA.

The geology of northwest Louisiana may be summed up in a few words. The surface soil in the low grounds bordering on the rivers, creeks and bayous is composed of alluvial deposit. The banks of the water courses and their beds are made up of the crumbling brown loam similar to that of the bluff and hill lands between the Ouachita and Red rivers, are covered with the orange sand deposit of the southern diluvial period.

The alluvial soil on the east side of the Ouachita, is not derived, as might be supposed, from the sediments left behind by the overflows of that river, but from the spring and early summer rise of the Mississippi, whose backwaters formerly covered the whole area of country included between the Ouachita and Mississippi rivers.

The Ouachita river is one of the clearest streams in the Southern States; its waters are almost transparent, and on this account it may be considered as one of the most beautiful rivers of this State. Its banks are composed of a stiff crumbling brown clay, which do not cave from below by the undermining of the water, but fall down from above by the disintegration of the clay materials. The west side is almost every where protected against the encroachments of the waters by lofty hills and steep or almost perpendicular banks, which, opposite the Hyneston place in Caldwell parish, rise to the height of from sixty to eighty feet.

The orange sand deposit consists here as every where else of large areas of sand hills; the sand being of various shades of color, from pure white to orange brown; and of various colored clays, which are mostly of a deep red, on account of the prevalence of iron, intermixed with it in a comminuted state, or existing in large masses, composed of argillaceous iron stone, ferruginous sandstone, and gravel cemented by oxide of iron into a conglomerate or pudding stone.

The gravel beds are not fossiliferous. There are, however, found in them, fragments of silicified wood, but no encrinitic stems or shells changed into silica have been met with, similar to the silicified fossils, which exist in great abundance in the gravel beds of Rapides east of Red river, and other parishes east of the Mississippi river.

In Union parish, on the road from Marion to Cherry Ridge, the hills are principally composed of argillaceous iron stone, covered by a thin layer of iron tinted sand, and here and there a shaly rock of metamorphic origin, which gives it the appearance of petrified wood, and the people of that part of the country pronounce it as such, and imagine that the petrification took place within a very few years at the spot where the rocks now lie. I was informed by an intelligent and educated planter that his little son had found the lower end of a pole around which fodder is stacked, perfectly petrified. He had not seen it himself, nor had he any inclination to have the truth of the statement verified. In another neighborhood I was told that a block cut for making shingles, was found in the woods after a few years, in a petrified state. If northwest Louisiana were a limestone country, and the water of the springs and wells were impregnated with carbonate of lime, these wonderful phenomena of sudden petrifications might be well founded. But in all this country hardly a trace of lime is perceptible in the water, and the petrifications found are siliceous, no calcareous petrifications occur here; and it is not probable that silicification takes place except in a sea, whose waters are of a high temperature, containing silica in a state of solution, or in hot springs, like the geysers of Iceland, which are impregnated with silicic acid.

From Farmersville to Spearsville the road presents a constant alternation of hills and hollows, where the argillaceous iron stone covers the whole surface, sometimes disposed in ledges, sometimes scattered in broken slabs washed by the water. These iron stone layers rest for the most part on gravel beds, and the pebbles are frequently intermixed with small fragments of water-washed iron-stones.

The country around Minden consists of a series of gravelly sand hills and the houses in the town are literally built upon the sand. These immense sand mounds rest upon yellow and gray clays, of which, in some localities, gullies of from twenty to thirty feet deep are exposed. In the outskirts of Minden, on the sloping banks of a shallow branch, are found thin layers of lignite from three to six inches thick and not more than a few feet of horizontal extent. It is imbedded in a grayish clay. About six miles from Homer lignite of a better quality is found, which, though it does not possess the metallic luster or the cleavage of coal, was supposed by some people

of the neighborhood to belong to the real coal formation. The existence of lignite in any part of Louisiana, as far as it has come under my observation, does not indicate any particular formation proper to the State, but it is like the iron stone a mere accidental component of the Southern diluvial deposit.

From Mount Lebanon to Sparta and from Sparta to within seven miles of Ringgold the surface is composed of pure sand, without intermixture of pebbles. About a mile this side of Rayburn's place the iron stone makes its appearance and the red water washed hills form the characteristic topographical features of the country. A short distance from Four Mile bayou there is a small shallow branch, strewn over with gravel, iron stone and conglomerate, where I found on the surface a considerable number of oyster shells (*Ostrea Alabamaensis*) in a natural state and most of them in a good state of preservation, being but slightly water-washed. These fossil shells belong to the Claiborne strata of the tertiary period, which, in Louisiana, has no equivalent representative. It is, therefore, only an adventitious fossil brought to the locality where it is found by swift water currents or ice masses drifting from the mountains in Arkansas.

The Southern diluvial deposit is here distinguished by the peculiarity that in many prominent localities the gravel beds are either intermixed or underlie irregular layers of argillaceous iron stone or ferruginous sandstone, which imparts the deep red color to the sub-soil. The gravel consists mostly of opaque quartz, hornstone and jasper, intermixed near Minden with iron g^oldes and silicified wood, and in De Soto parish with leaf impressions in ferruginous sandstone, and in Union with slabs of shale of small size.

The gravel of the northwest Louisiana diluvial deposit is not, properly speaking, fossiliferous. No silicified sp^orifers or producta, no encrinitic stems are here found; in which respect it differs so much from the diluvial gravel of East Rapides; East Feliciana, East Baton Rouge, Washington and St. Helena, which is strictly fossiliferous, and contains scattered rocks of conglomerates and bogue iron, but no argillaceous iron stone and ferruginous sandstone.

The difference of the gravel of the two regions of country above indicated, suggests the idea that the deposit of the two locations must have been derived from different mountain ranges. To solve

this question in a definite manner it would be worth while to ascertain whether the diluvial deposit of the eastern portion of Louisiana has not been washed down from the Alleghaney mountains, whose watershed is in a southwestern direction; while the gravel beds of northwest Louisiana derive their materials from the Sierra Madre and Guadalupe mountains in New Mexico, by way of Texas, and partly also from the mountains of the Indian territory and Arkansas; the natural watershed of these mountain ranges being southeast passing directly through northwest Louisiana to the Gulf of Mexico.

That part of northwest Louisiana which I passed in my travels, does not show any outcrops of the underlying formations; but judging from the fossils from Price's and Holtonswells in Bienville parish, it appears that the post tertiary formations cover in that part of the State the cretaceous division of the pleistocene period.

The surface geology of Louisiana is confined to the alluvion, the bluff formation and the diluvial deposit, all of post tertiary origin; with an occasional cropping out of the crumbling gray sand stone of the Grand Gulf period, and the blue lime stone of St. Landry and Winn, of tertiary origin.

The surface soil of Northwest Louisiana consists of a thin layer of dark gray soil, with a sandy, or red and yellow loam subsoil, which, if judiciously cultivated, produces fair cotton and corn crops; but unless manured wears out in three or four years. The land as well as the climate would be well adapted to the cultivation of wheat and other cereals, but as it requires much practice and skill to handle the scythe effectually, the freedmen refuse to cut it after the wheat has ripened.

The so called red lands, are considered inexhaustible. What imparts to them this extraordinary fertility, it is impossible even to conjecture, unless this kind of soil is impregnated with lime, phosphates in a comminuted state, which could only be ascertained by chemical analysis. As a general rule the uplands of Northwest Louisiana are but moderately productive, but where the lands lie level and do not wash, this soil could be improved by manuring and judicious farming, and one acre could be made to yield, what three acres now hardly produce, requiring three times as much labor, and exhausting instead of improving the land. The lands improved by

a proper system of tillage instead of deteriorating in quality and becoming in a few years entirely worthless, would increase not only in productiveness, but in the cash value of the land itself, and instead of killing the hen that lays the golden eggs, it would preserve its vitality for an indefinite number of years. A double object is therefore gained by this mode of agriculture. Better crops are produced by cultivating less land, and the amount of farm labor is considerably diminished, which is an offset in the expense account. Under this system, manure making must become one of the principal business of the farm, and all the refuse and rubbish of the household might be preserved for this purpose, and if the agriculturist makes it his study, having for its object to return to the land, from which he obtains his crops, a greater proportion of fertilizing materials than preceding crops have taken up and permanently withdrawn from the soil, he may rest assured, that his outlay of capital and labor will be fully compensated by enhancing the general cash value of his lands, and reaping a more abundant harvest from a smaller area of ground. What the upland farmer principally needs is to introduce system into his farming operations. He ought to determine what area of ground he will use for farming purposes, and this area should be in proportion to the number of hands he can command under the most favorable circumstances. He should then lay off his grounds in lots composed of a certain number of acres. His object should then be to study the advantages derived from the rotation of crops, following, and sowing his grounds in clover, grass, or beans to prepare his lands for a plentiful crop. The object of his plauting operations should be not merely to draw the greatest amount of production with the least amount of labor, but to improve his lands, to embellish his plantation, and to use all his available capital for this purpose. To accomplish this most effectually, it would be indispensably necessary to sow and plant in abundance everything required for his support and that of his family. He must cultivate corn, wheat, oats, and hay to supply him with bread and feed for his work animals and live stock. He must raise stock of every kind to furnish him his annual supply of meat. He must cultivate vegetables and fruit to replenish his table with the luxuries of a country home. When all this is abundantly provided for beyond any contingency of rain or sunshine, it would be prudent husbandry

to direct his surplus capital and labor to the production of the staple articles such as cotton or sugar, from the sale of which he can realize some disposable cash to buy clothing and other luxuries and educate his children ; and if his crop is sufficiently remunerative, he may have money enough left to add, from year to year, new improvements to his plantation or farm, and make it an attractive home to himself, to his wife, and to his children.

The present system of planting, if system it may be called, is exactly the reverse of all this. The first thought of the planter is to plant as much cotton or sugar as possible, and as little corn as during the most favorable crop season would barely supply a sufficiency for home purposes, while everything else is neglected. Even if the crop is not injured by the worm, the caterpillar, the drouth, or excessive rains, the planter hardly ever realizes his expectations, for if good cotton crops are universal throughout the Southern States, the price will fall in proportion to the supply; and if the corn crop is a failure the planter is compelled to buy corn at ruinous prices, while his extraordinary yield of cotton hardly realizes a sufficiency of available funds to supply him with the necessaries of life. It is time that this hazardous system, which was, perhaps, the best when the supply of labor was regular and compulsory, were abandoned, and the planter "accept the situation" and act accordingly. If the soil of North Louisiana, notwithstanding its inferior quality when compared with the alluvial lands, were cultivated upon a more rational plan than it is at present, that region of country could be made one of the most flourishing agricultural districts of the State.

The supply of water is abundant everywhere, and it is the best potable water that can be found; it is quite cool during the hottest summer months, and requires no addition of ice to make it more palatable. Fruits of every kind flourish here. Apples and peaches were so abundant this year that most planters were compelled to feed them to their hogs to prevent their rotting. But the orchards, notwithstanding their vast yield, are almost everywhere in a dilapidated condition, for the directing hand and superintending care are wanting.

The forest growth is not as gigantic as in the swamp country, but pine and oak timber of good quality, suitable for lumber, exists in the greatest abundance.

The population is composed of small planters, belonging to the middle classes, honest, industrious, possessed of considerable public spirit; and willing to be led in any scheme of feasible improvements that may be proposed. All that is required is the guiding genius who will initiate the measures. No social community, in any part of Louisiana, pays more attention to the education of the young than the people of the northwestern parishes. The schoolmaster is literally abroad in that part of the land. In many neighborhoods through which I passed, though poor in appearance, yet teachers are engaged for the session, who have no less than a thousand dollars guaranteed to them for their services, which is a large salary in countries where board can be had at from ten to fifteen dollars a month.

Numerous railroads are also projected through northwest Louisiana. One is to connect Monroe with Shreveport, which ought to have been completed long ago. Another is proposed to extend from Monroe to Fulton, Arkansas, and a still more important route is contemplated, connecting Shreveport with Memphis. The completion of these roads would give a new impulse to the planting interest, and would develop the natural resources of these parishes on a far more extensive scale.

Cotton spinning and the manufacture of cotton goods has also received some attention. A small cotton mill has been lately established at Arizona, six miles from Homer, in Claiborne parish, operating about three thousand spindles, and being principally engaged in the manufacture of osnaburgs; another factory of smaller capacity has lately been established at Mount Lebanon, Bienville parish. Establishments of this kind, for home consumption and partially also for foreign supply, may possibly succeed to a limited extent; but it must not be supposed that north Louisiana can ever become a great manufacturing district, such as exist in Massachusetts and elsewhere, for to manufacture on a large and extensive scale and enter into competition with rival establishments possessed of immense capital, it requires water power which the northern parishes do not possess, steam power being too expensive where there is no coal right on the spot. Besides for successful manufacture it requires a large population in prosperous cities, where the supply of white skilled labor is abundant, so as not to be exposed to the necessity

of stopping the machinery from want of hands to attend to the manufacturing manipulations. There are many other necessary conditions which it is unnecessary to mention here and which are wanting in North Louisiana.

It would be advisable that the planters of that part of the country employ their surplus capital to advance the agricultural and commercial interests and to render their land more productive and its yield more profitable, and home manufactures will follow, by the natural order of things, in the wake of the general improvement of the country. It only remains for me to give a succinct outline of the botanical features of north Louisiana. The forest growth is principally composed of short-leaved pine and a considerable variety of oaks, among which the black jack, post oak and black oak predominate. The *Pinus taeda* and the *Pinus inops* give, however, the characteristic features to the forest of the hill lands. Hickory is very abundant, and the *Magnolia glauca* (bay laurel) and the *Zanthoxylum Carolinianum* (prickly ash) are frequently met with, but the *Magnolia grandiflora*, so common in the swamps, is entirely wanting. On the banks of the Ouachita the *Robinia pseudo acacia* (flowering locust) fringes almost every where the water's edge, and this is the only part of the State where I found this tree grow wild. The *Verbascum Thapsus* (common mullein) and the *Verbascum blattaria* (moth mullein) are very common. The first covers whole regions of waste land in Ouachita and other northern parishes; the last is found principally in Webster parish. Both are introduced plants—they are not indigenous to the State. The prevailing summer weeds are the *Helenium ^{aut.} tenissolium* and the *Monarda punctata* (horse mint.) The first of these is the most wide spread plant in Louisiana, it probably occupies as much ground as all other flower-bearing plants together.

The general botanical features of this part of Louisiana are nearly the same as those of the pine lands where the orange sand formation prevails, with some marked difference, however, for in many localities I found numerous specimens never seen before in any other part of the State.

AN ACCOUNT OF MY JOURNEYINGS.

Southwest Louisiana.

I left Baton Rouge on the Selma, an Opelousas packet, on the twentieth of April. It was a beautiful sunny spring day, and the trees were adorned with bright green foliage, which imparted youthful freshness and rich luxuriance to the face of nature. The Mississippi was everywhere at the highest water mark, and reached within a few inches of the top of the levees. This immense rise of the Mississippi waters tested the efficiency of the levee system to the utmost, and with one or two exceptions the levees afforded sufficient protection to stem the powerful current of "the father of waters," and keep him within circumscribed boundaries. The system is by no means perfect, and requires additional engineering skill and labor to render it complete. The alluvial lands beyond the levees seemed to be well cultivated, and the long corn, cotton and cane rows had rather a neat coquettish appearance, while their geometrical regularity suggested the fanciful idea that they must have been dressed up for some festival occasion. The lowlands, which were purposely excluded from the protective system of the law, were wholly or partially overflowed. In some localities patches of the *Senecio lobata* showed their golden yellow heads above the surface of the shallow waters. Frequently a stray house or a freed-man's hut formed, with its rising ground, a small island in this wide expanse of the Mississippi, and these houses were often occupied, men, women and children sitting on the gallery anxiously looking for the abating of the waters; while cattle and horses, lean and hungry, nipped the tree branches or stood patiently fixed to one spot as if waiting for something to turn up.

The Courtableau was sufficiently high to be navigable for large boats, and we landed safely in Washington on Saturday at eleven o'clock. I immediately proceeded in my carriage to Opelousas, and found a variety of spring flowers on my way to that place. The town was precisely in the same condition as I found it the previous summer. No improvements of any kind were visible, and the inhabitants seem to be satisfied that they have done well for themselves and their country, and that they can safely repose upon the laurels already won in the battle of life. I was, however, informed

that a German settlement had just been started in the parish which promised good results for the future, and may form a nucleus to make St. Landry the empire parish of the State.

The road from Opelousas to Grand Coteau is rather hilly. The uplands are of tillable quality, but not rich. Magnolia, sweet gum, locust, swamp chesnut, ^{oak} and hickory are common in the low grounds and the high lands are supplied with the usual variety of oaks and other trees belonging to the red loam soil forest of the bluff. Grand Coteau is a village spread over a large area of ground, with its houses much scattered; but the most notable feature of the town is the St. Charles College, a school under the control of the Jesuit fathers, which presents with its extensive grounds quite a romantic appearance. The prairie land plantations in the neighborhood on the road leading to New Iberia are in a flourishing condition, and may probably be considered as belonging to the finest planting district of St. Landry.

As the object of my excursion was to ascertain the botanical characteristics of the Calcasieu prairies, I returned to Opelousas and started from there, through one of the most extensive prairie countries in Louisiana, in the direction of Lake Charles, a distance of ninety miles. During the spring season the prairies are beautiful beyond description, especially where the old withered grass has been burnt and a uniform green carpet of vegetation decks the undulating prairie level, as far as the eye can reach, with the softest verdure, variegated with the bright colors of the luxuriant prairie flowers. Here the blue-eyed scullcap vies with the dark purpled clusters of the psoralea, and the yellow and white-flowered false indigo intermingles freely with the fringe-flowered blue spiderwort; the narrow-leaved evening primrose every where gilds the grass with its golden spangled flowers, contrasted by the rose blossoms of the wild onion, whose range of growth is most extensive.

The roads through the prairies are in most places not better marked than a cow path; sometimes the continuity is entirely interrupted by the luxuriant growth of grass, and the track is only found again after traveling for a mile or so in a straightforward direction by the aid of the compass. These interminable paths are continually crossed and recrossed, and form a kind of labyrinth to the traveler who is unaccustomed to wander solitary and alone through a level

country without forests to serve as landmarks, houses being only visible in the misty distance of the blue horizon, and at intervals of ten to fifteen miles.

Prairie traveling has, however, that advantage that in dry weather no difficulties present themselves in passing in any direction with or without a road, unless stopped by an impassable bayou.

The places cultivated in these prairies are generally small farms owned by Creoles, who labor with their own hands, make a small crop of corn, and perhaps a little cotton or sugar, but pay considerable attention to the rearing of live-stock. Like the stock raisers of the pineflat, their mode of living is extremely simple; the principal luxury they indulge in is coffee, the flavor of which is the most delicious, forming a beverage fit for the gods—such as a Frenchman knows only how to brew. They are, however, contented with their lot, and they are, probably, happier than the richest nabob who lives in a palace and feasts on the richest viands money can procure.

I crossed Bayou Cannes and Nez Pique, which are only a few miles apart, in a ferry boat. The surface of Bayou Cannes is completely unrippled; it seems to have no current whatever. Its waters look black and dirty, and if the original settlers who named the stream had been possessed of any classical learning, it could not have failed to suggest the name of Styx, the river of death, as the most appropriate designation. The Nez Pique is a bayou of some pretensions; it is broader than Bayou Cannes, but its waters are nearly as dirty and stagnant. Everything looks solemn and gloomy, old, worn and lifeless on these two water courses. The trees seem to be in a state of mourning, their foliage is dark, their trunks are water-washed and bare. The land is poor. The principal occupation of the Creole settlers is the splitting of rails and posts which they sell to the prairie farmers. The timber is of good size, composed of oak, cypress and hickory. Here the botanical features also change. The Pinkroot, with its long, tubular, crimson flowers, and the Soapberry or wild china tree, as it is sometimes called, grows in great luxuriance.

Beyond the immediate banks of the Nez Pique, at Miller's ferry, the prairies are uninterrupted as far as Lake Charles, a distance of forty-five miles, except by occasional strips of pine timber where the land rises above the ordinary prairie level, and consists of pure sand without any deposit of prairie soil on the surface.

On Lacasieu bayou, about twenty miles from Lake Charles, there is a comparatively flourishing settlement, the only one that has come under my observation on the whole route, and from there the road becomes plain, leading directly to town.

Lake Charles is situated on Calcasieu river, which forms here a broad and shallow lake about twelve feet deep, from which the town takes its name. It is on the edge of the pine lands by which it is surrounded. Its houses are scattered and old. No improvements of any consequence are going on. The jail is the most substantial building in the place, but is a useless luxury; it has no occupant, and is perhaps the only building "to let." The courthouse is an old, dilapidated one-story frame house. The town can boast of a telegraph office and a weekly steamboat line, connecting Lake Charles with Galveston, Texas, which is the lumber market for the disposal of the cypress lumber furnished by the numerous saw mills on the banks of the Calcasieu river. The favorable position of the town ought to make it a place of some note, and it would undoubtedly increase in importance if the back country were sufficiently settled capable of supporting it. The orange tree is much cultivated in and around Lake Charles, and whenever the season is favorable the orange crop of the neighborhood is of considerable value.

The Calcasieu river is a clear and beautiful stream. Its depth above and below the lake is from thirty to fifty feet, and it would be navigable to the gulf by the largest ships were it not that its channel, forming in several places wide and shallow lakes, interrupts the continuous course of ocean navigation. Small steamboats run from fifty to sixty miles above Lake Charles to bring down timber for the saw mills, for there are very few settlements on its banks. With the kind assistance of Dr. Gray I found many new specimens in the vicinity of Lake Charles and at Gossport, one of the most extensive lumber establishments in the neighborhood.

Having traversed the prairies for a considerable distance, I intended in my homeward journey to explore the pine flats and take the pine hills of South Rapides in my route.

The roads in the pine flats are no better marked than the prairie roads, and sometimes the narrow beaten path entirely disappears for some distance, and the pine logs which obstruct the road every

two hundred yards lengthens the distance considerably by the constant dodging from one side to the other, made necessary by the obstructions. There are but a few houses on the road ; sometimes two or three are found close together within twenty miles, but all the rest presents the most gloomy and dreary region that can be imagined, the level tract of pine lands being but occasionally interrupted by a small branch or creek running in a deep hollow.

From Bundick's creek the road is extremely hilly and water-washed, and after traveling twelve miles Sugartown is reached, which, with the exception of Lower Bundick's creek, is the best settlement in North Calcasien. Here I was very hospitably entertained by a gentleman, originally from Kentucky, who had opened a store in the place, and thereby rendered considerable service to the neighborhood by furnishing all the necessaries and luxuries of civilized life, and thus giving an impulse to agriculture.

The pine hills from Sugartown to Calcasien river are extremely poor and the farmhouses are scarce, and are only met with at long distances. When I arrived near the Calcasieu bridge, about thirty-five miles from Alexandria, I was informed that the sloughs on the other side of the bridge had been swelled to such an extent by the rain that had fallen the previous day that they could not be passed without swimming. I therefore remained in the neighborhood till the next morning, when I ventured to cross, but found the bridge the most dangerous on account of its dilapidated condition, while the sloughs were just high enough to cover the carriage bed without the necessity of swimming. The low swamp lands on both sides of the river were almost impassable, especially as they were cut up by deep ruts, made by heavily loaded ox wagons, which are constantly passing between this part of the country and Alexandria.

The road from Calcasieu river to Bayou Rapides continues to be sandy and hilly, but is, comparatively speaking, in a passable condition. The abrupt descent of the pine hills and the beautiful level surface of the highly improved alluvial lands of Bayou Rapides, form quite a contrast, which gives to the country a picturesque appearance. Although this part of Rapides is settled by first class gentlemen, yet some parts of the most level road that can be found, were in the most desperate condition. Mudholes are met with which it was impossible to avoid, into which my carriage fell with a plunge,

and thus sank into the soft mire, reaching above the hub of the wheels. I was glad when I landed in safety with my carriage uninjured at General Graham's, where I was received with the utmost kindness, and to whom I owe my acknowledgment for his attention, and for the pleasant and agreeable entertainment he afforded me during my stay at his house.

After having tarried for a few days at General Graham's, I visited the grounds around the old Seminary and made some additional collections. Mrs. and Mr. Seay are entitled to my thanks for the kind treatment I received at their hands while enjoying their hospitalities.

I shipped on the Hodge at Alexandria and returned to Baton Rouge, where I arrived on the eleventh of May.

The result of the spring excursion was highly satisfactory. I found several species of considerable rarity, which though they are not new, yet they have never been described in Southern botanical works.

Northwest Louisiana.

My summer excursion during this year was principally confined to the parishes of north Louisiana. Starting from Baton Rouge in a Ouachita boat we passed the mouth of Red River and proceeded from there a distance of forty miles to Black river, which, at Trinity, receives the tributary waters of the Ouachita and Tensas rivers, on the first of which Columbia is situated, where I stopped to commence my journey by land. Columbia is a neat little village and seems to be improving. It is a place of considerable inland trade, and the parish site of Caldwell. I crossed the river in a ferry boat, and found the road on the banks of the river, as far as Monroe, in fine traveling order, being perfectly level—it is, during the summer months, one of the best country roads in the State. The plantations in Caldwell, as well as Ouachita, are very fine, the land being entirely alluvial, and they seemed to be well cultivated, although the planters suffered much from the spring rains, the overflow, and partially also from the summer drought. The residences are generally well constructed, neat cottage houses, in good order, and bear evidence, not only of the cultivated taste, but also of the former wealth of the Ouachita planters. The plantations which front the river are all too large, however, under the present labor system, and should

be divided out into smaller places. They would by this means become more manageable, and could be subjected to a more profitable mode of agriculture. The river banks being composed of the brown crumbling loam of the bluff cave to such an extent that in a few years some of the homesteads will have to be moved back to save them from a watery grave.

On Saturday the banks of the Ouachita are every where lined with freedmen engaged in fishing, for during that day all field labor is suspended and the crop has to take care of itself the best it can, for it is more important to have a mess of fish for Sunday dinner than to make corn and cotton grow, which requires considerable exertion and some waste of muscle and nerve.

Monroe is a place of considerable size; it is well built and promises to be the second largest town in North Louisiana. It has many good and some elegant buildings, and whenever the Vicksburg railroad shall be extended to Shreveport it will undoubtedly enlarge its proportions and establish branch connections with Fulton and Alexandria.

At the edge of the town Mr. Pargoud has one of the best improved plantations in the State. It is handsomely fenced in, full grown sycamores, set out at regular intervals, form the posts into which the cross-bars are fitted. The freedmen's houses are all painted white, are very neat and arranged in straight rows, so as to form regular streets, and the whole has the appearance of a flourishing village. The Ouachita river is second only to the Calcasieu in the transparency of its water and the picturesqueness of its banks. The predominant forest growth is the water oak, the sycamore locust and robinia. On the waste lands the bitter weed (*Helenium tenifolium*) and the mullin cover the surface soil and choke out grasses and other weeds.

My stay in Monroe was but of short duration and I continued my route in the direction of Bastrop, in Morehouse parish, twenty-eight miles distant. The cotton plantations on the road, as far as Bayou de Siard, are in a high state of cultivation, but there the road turns to the left and passes over a strip of country composed of brown loam, covering the pebble beds, which are sometimes exposed. There black-jack, post oak, gum and pine predominate. There are but a few scattered huts all along the road inhabited by shingle

cutters. This pine and oak ridge extends into Arkansas and is bounded on the east by Prairie Mer Rouge and Prairie Jefferson, both rich alluvial plantations, and on the west by Bayou Bartholomew. The soil beyond its immediate banks ranks among the best cotton lands in the State.

Bastrop is a small village of about five hundred inhabitants and has some good residences in the outskirts. It has two churches, several stores and a weekly newspaper. About two miles from town Bayou Bartholomew is reached, where the uplands change into alluvion. The bayou is rather a muddy stream, confined within its banks by the same brown crumbling loam of the Ouachita and Red river banks. Bayou de Siard, which, during the summer, is perfectly dry, is merely formed from the backwaters of Bayou Bartholomew. It is a kind of outlet to relieve the main channel of the great volume of water poured into it by the Ouachita at its spring rise.

At the mouth of Bayou Bartholomew the Ouachita river was at least a quarter of a mile wide at the time I crossed it in the Ouachita City ferryboat. Ouachita City is an insignificant place in Union parish, composed of a few houses built on the immediate banks of the river. Here the orange sand intermingled with iron stone pebbles begins, which is the characteristic formation of the whole of North Louisiana west of Ouachita river. The land in Union parish is rather of an inferior quality, producing but one-third of a bale of cotton, even when the land is fresh, which becomes entirely valueless for cultivation in the course of three or four years. This part of Louisiana is inhabited by a great number of small planters, who, for the most part, work themselves, raise their own meat, and are not dependent on the labor of the freedmen. They make a comfortable living, support their families in their own simple way, but have always money enough left to send their children to school at least a portion of the year, when their labor can be dispensed with.

In Northwest Louisiana stores are found at almost every crossroad. They are a great convenience to the small planters. They form the central point of the settlement, where all the neighborhood roads converge, and here are the school houses and meeting houses, as well as the groceries; and here public gatherings are held for political and other purposes. Occasionally these small places receive some high-sounding name, and on this account it may sometimes

happen that the traveler feels very much disappointed on finding out, upon inquiry, that he has long since passed the embryo town which has entirely escaped his notice.

Near Marion there are springs whose water is slightly calybeate, but the place itself presents nothing of interest. I crossed Bayou Loutre at Cherry Ridge on a bridge, and proceeded from there to Farmerville, the parish site of Union. There are some places on this road well cultivated in cotton and corn, and provided with dwelling houses of a neat and comfortable appearance.

Farmerville is a small village, well laid out, and a spirit of improvement seems to be prevalent among its citizens. It is a mile and a half from Bayou d'Arbonne, which is navigable by small steamboats, connecting with the Ouachita river at Trenton. At the time of my visit it happened that there were two lunatics confined in jail, which could not be accommodated in the State Lunatic Asylum at Jackson, and that otherwise peaceable town was exposed to the incessant outcries and the strange and uncouth noises of men who are not accountable and whose action can not be controlled, and this nuisance had to be endured because the State has not erected a building sufficiently large to receive all that may be so unfortunate as to lose their reason.

From Farmerville I traveled to Spearsville, a small place pleasantly situated, with two stores, a meeting house and a school house. The country in the neighborhood is perhaps the best cotton producing region of Union parish.

The road from here to Homer is in a much better condition than any road that I had traveled in the hill country, but the settlements are still poor until within nine or ten miles of town, where the plantations are cultivated by hired freedmen and the houses are well built and neatly painted.

Claiborne is one of the best populated and one of the most flourishing parishes in the northern part of the State. The planters are thrifty and enterprising, and belong to the better class of Georgians, by whom the parish was originally settled. They are mostly Baptists, but the Methodists have lately swelled their numbers considerably.

I was assured that the Claiborne lands are more productive than those of Union. Such a conclusion could not be reached from mere

observation, because the geological formation is precisely the same in both parishes, nor does the vegetation differ, and the soil seems to be in all respects similar. It would be worth while to analyze the soil of Union and Claiborne and ascertain whether the difference of fertility is to be accounted for by the difference of chemical constituents. It is at least possible that the Claiborne soil may contain more lime in a commuted state than is found in the Union parish lands. There can be nothing else in which they can possibly differ in a chemical point of view. They both abound in alumina and silica, and if iron has any fertilizing property both parishes have enough of that mineral ingredient and to spare. The gray surface soil forms everywhere in North Louisiana, a mere crust not more than from four to six inches deep.

Homer is one of the most pleasant places in that part of the State. Its streets branch out from the Courthouse square, and they are well built up with stores and tastefully constructed residences. Society is quite select, and the citizens are generally engaged in prosperous business, and display considerable public spirit. The male and female colleges are well-conducted schools, and are well deserving of the patronage which they receive.

In the vicinity of Homer the grape is extensively cultivated, and several vineyards planted with the well-known scuppernong, are in a flourishing condition and promise to be successful. Whether the climate of North Louisiana is well adapted for the successful cultivation of the grape can only be ascertained by experience. According to Humbolt's theory the grapevine does not flourish south of thirty-four degrees of north latitude. But some species of grape may be found adapted to the climate of North Louisiana, and if industry and practical skill are brought to bear upon this branch of agriculture, wine making may become a profitable business, requiring but little capital and hardly any hired labor.

Webster parish is in all respects similar to Claiborne, from which it has been, in part, divided off. Minden, the parish site, is a place of some pretensions. It has but a single street, which is from 300 to 400 yards wide, and the numerous forest trees that have been left standing, give to it a somewhat rural appearance. It has many fine storehouses and carries on a thriving trade during the spring season, being at the head of navigation on Dorchitta bayou, which connects with Lake Bisteneau and Red River.

This was the turning point of my homeward journey; but I desired to visit Mount Lebanon in Bienville parish, and therefore deviated from the straight road, leading to a Red River landing.

Bienville parish is less thickly settled, and the plantations seem to be farther apart than in any other of the northern parishes, until Mount Lebanon is reached, which is the center of one of the wealthiest neighborhoods in that part of the State. The place is situated on an elevation, and contains numerous good houses and many stores. There is a small factory in operation here, making jeans and striped cotton cloth, and an institution of learning, intended to be of a high grade, was in a flourishing condition before the war, but has now dwindled down to an academy of some local importance.

I was hospitably entertained here by Dr. Bartholomew Egan and Dr. J. C. Egan, and I am under obligations to both these gentlemen for their courtesy and kind attention.

In a botanical point of view Bienville parish presents greater interest than all the other northern parishes combined. I found here many specimens of rare occurrence, which have not been seen any where else; but this indicates merely that the soil is poorer and agriculture is less flourishing, which is really the fact, for with the exception of a few localities the uplands are principally composed of pure sand, and consequently are valueless for cultivation. The timber is however of good size, and sawmills might do a profitable business here.

Mt. Lebanon is only eight miles from Sparta, which is the parish site, but presents nothing else of interest. It is built on a sandy flat, bordered on each side by a low swamp. Here I found the *troelichia Floridana*, a plant that prospers in sandy soil, and grows abundantly in Florida.

From Sparta to Ringgold the road passes over a bridge that spans Black Lake, which is over a quarter of a mile long, and is perhaps the best construction of that kind in North Louisiana. Ringgold is the central point of a prosperous settlement, has several stores, a meeting house and a masonic lodge. From there to Springville, in Red river parish, the road is more level than usual, but the country seems to be very thinly settled. Before Cachtwa was built up as the parish site Springville was a prosperous town, but it is now in an extremely dilapidated condition, and the vacant store-houses are all falling to decay.

From Springville I made my last day's journey to Grand Ecore, in Natchitoches parish. The west banks of the Red river are caving very much, like the banks of the Ouachita river, and many an acre of the finest alluvial land is annually swept away by the undermining force of the Red river waters.

Grand Ecore, which is on the east side of the river, is situated on a high bluff, similar to that of Port Hudson, and the layers of the different shades of clay of which the banks are composed are readily distinguished. Grand Ecore is a place of some commercial importance. It is a shipping point for a large area of country, extending as far as Texas, which sends here droves of cattle to be shipped in boats to New Orleans. The town can boast of a good hotel, the only one in North Louisiana that deserves to be recommended. There are quite a number of stores here which seem to do a thriving business.

From here I shipped on the Rapides, and arrived in Baton Rouge on the 25th of August.

ECONOMICAL, ARTISTIC AND MEDICINAL USE OF PLANTS COLLECTED.

Trees and Shrubs.

The red maple (*acer rubrum*) is common in the swamps and lowlands of Louisiana. It grows from forty to fifty feet high, and blooms near New Orleans in the month of February. The blossoms, which are of a deep red, appear about two weeks before the leaves. The fruit, which is called a key or samara, is also of a purplish red, like the flowers.

The growth of the red maple is very rapid; its branches spread out very gracefully, and the brilliant red tints of its autumnal leaves render it one of the most beautiful shade trees. It can be propagated from the seed. The cellular matter of the inner bark furnishes, on boiling, a purplish dye, which is sometimes used by country people as ink, for which it is, however, not very suitable, as it does not dry well, and becomes glutinous in damp weather. The wood has but little strength, and is liable to injury from insects, but it acquires by polishing a glossy and silky surface. It is much employed in the manufacture of various articles of domestic use, such as chairs, etc. It is also used for making saddle trees, shoe lasts and

broom handles. The curled maple is obtained from old trees with undulating fibres. When treated with sulphuric acid and linseed oil, it displays ^avarying shades of color, which equal in lustre the best mahogany. It is now principally applied for stocks of rifles and fowling pieces.

The ~~Common~~ American alder (*alnus serrulata*) is a branching shrub, grows in low wet soils, and is extremely common in North Louisiana. The catkins form early in spring, and remain naked through the summer and the following winter, and expand next spring. It is said that charcoal made from alder wood is highly valued in the manufacture of gunpowder. Every part of the plant, especially the bark and cones, are astringent and somewhat bitter. They have been used in intermittent and topical applications. The cones are also used in dyeing, and the leaves and bark in tanning. The wood, though soft and light, if kept submersed or buried in damp earth, is very durable, and the young branches are on this account used for the purpose of filling in drains.

The hornbeam, iron wood (*carpinus Americana*), a small tree, is common on the banks of water courses. It is of a very slow growth; its trunk is rigid, covered with smooth, ash-colored bark. Its wood is exceedingly hard and close-grained, and is sometimes employed by turners for fancy work or for purposes which require compactness and solidity.

The persimmon (*Eospyros Virginiana*) is a small tree about twenty or thirty feet high. This is one of the trees that has the male and female flowers, which are small and of a greenish yellow, on different trees. The fruit is not palatable till late in the fall, and when fully mature is distinguished by a peculiar taste, the native astringency being softened by a pungent sweetness which is not unpleasant. If cultivated with care desirable varieties of date plums might be produced, that would be as superior to the native persimmon as the pippin is to the crab apple. The heart wood of the persimmon tree is brown, hard, compact and elastic, but liable to split. Screws, maillets, shoe lasts and wedges have been made of it. It has also been employed by coachmakers for shafts of carriages. The inner bark is very bitter, and has been used in intermittents. Michaux tells us that in the Western States the persimmon is made into cakes with bran, and a beer is thus prepared from it with the

addition of water, hops and yeast. Persimmon beer is an extremely pleasant drink, and it is rather strange that in the Southern States, where this fruit is so abundant, it is not made use of for this purpose in a climate where non-intoxicating refrigerant drinks are so desirable. A spirituous liquor may be obtained from the fermented fruit by distillation, which, it is said, improves with age.

The pecan nut tree (*carya olivaeformis*) is a species of hickory, and grows in Southern Louisiana, attaining a height of from sixty to seventy feet. The nuts of this species are enclosed in a thin, woody husk, and are smooth and of a brown color, shaped somewhat like an olive. The kernel is very sweet and superior in flavor to that of the shellbark and the other hickory species. The timber is coarse-grained, of great strength, very tough and heavy, but is liable to attacks of insects, and is not suitable for building purposes.

The wax myrtle (*myrica cerifera*) is an indigenous shrub, and grows most abundantly in the pine flats of Calcasieu and elsewhere in sandy soil. The leaves when bruised are very fragrant. The berries are coated with wax, which is collected by boiling them in water, when the wax melts and rises to the surface. It is often used under the name of bay berry tallow, for the manufacture of candles, and the making of soap. It is also employed for stiffening the ends of circular lamp wicks. The powdered bark has a peculiar aromatic odor, and astringent properties.

The sweet bay (*magnolia glauca*) is a small tree and grows in great abundance in North Louisiana, not merely in swampy soil, but near the sand hills. It bears large, cream-colored, odorous flowers, and has thick shining leaves. It is a beautiful ornamental tree, and should be found in the South in every garden where the *magnolia grandiflora* flourishes. The wood is sometimes used for making joiners' tools. The bark, which is aromatic and pungent, is sometimes employed by country people in intermittent fever. A tincture is also made of it which has been administered in chronic rheumatism.

The cape jasmine (*gardenia grandiflora*) is one of the finest evergreen shrubs of the gardens. It is cultivated on account of the fragrance and beauty of its double white flowers. It is indigenous at the Cape of Good Hope.

The tree of heaven (*ailanthus glandulosa*) is a large tree of very

rapid growth, reaching the height of sixty feet. It is a native of India, of northern China, and it grows in the neighborhood of Pekin. It is a beautiful shade tree, but is much objected to on account of the peculiar odour of its flowers.

The wood of this species is very hard, compact, of a deep red color, and is often beautifully veined of a deep red and golden tint. It is susceptible of the finest polish, and has a fine satin-like lustre, which renders it well suited for cabinet making. The leaves are not liable to the attacks of insects, and it has lately been asserted that cattle feeding on them are exempt from murrain. The bark has been recommended as a vermifuge, especially for the expulsion of tape worm. It has been suggested to cultivate this tree on the prairie lands on account of the facility of its propagation and the rapidity of its growth.

The Japan plum (*mespilus japonica*) is an evergreen tree, and is planted in Louisiana for its fruit as well as for ornament. It has large leathery leaves, and whitish flowers which grow in clusters at the summit of the branches. It produces its blossoms as late as November, and ripens its fruit early in spring. Its foliage is very thick and it is a highly valued shade tree.

The soap berry, wild China tree (*sapindus marginatus*) is a tree of moderate size, and grows in the swampy lowlands of the Calcasieu prairies. It has pinnate leaves and greenish flowers. The fruit is fleshy externally and resembles the China berry. The seeds are round, excessively hard, and might be employed for making buttons. The fruit of some of the species growing within the tropics are used as a substitute for soap, their outer coating containing a saponaceous principle in sufficient abundance to produce a lather with water.

The sweet-leaf (*symplocos tinctoria*) is a small tree, bearing smooth, coriaceous leaves and small yellow flowers. It grows on Bushy creek, in Calcasieu parish. The leaves have a sweetish taste, and are a favorite food for cattle. They are also used in Georgia and Carolina for dyeing yellow. They probably possess some medicinal property, and if previously parched so as to destroy their astringency, the infusion might serve as a substitute for tea.

The Japan privet (*Ligustrum Japonicum*) is a middle-sized tree much cultivated. It has dark green coriaceous leaf and clusters of small white flowers. It is an evergreen, and its bunches of purplish

berries remain on the tree until the spring flowers appear. The leaves, the bark and the berries have similar properties of those of the common privet.

The poison sumac, poison elder (*Rhus venenata*) is a tall shrub with pinnate leaves composed of eleven or thirteen smootish leaflets. It has whitish papery looking berries. It was once considered identical with a species of *Rhus* which grows in Japan and furnishes a black varnish. The opaque whitish fluid which exudes from it becomes black on exposure, and may be made to yield a durable, glossy varnish by sufficiently cooling it before it is applied. It is exceedingly poisonous to some persons who come in contact with it.

Horticultural, Agricultural, and Medicinal Plants.

The hyacinth (*Hyacinthus orientalis*) is a well-known genus of very handsome lilaceous bulbs. It is a native of the East, and has been cultivated from time immemorial as one of the prettiest early spring flowers of the gardens.

Asparagus (*Asparagus officinalis*) is a perennial and herbaceous plant ; it is a native of several places in England, on the sea coast. The steppes of Southern Russia and Poland are covered with this plant, and it is eaten by horses and cattle like grass. It is also common in Greece and was esteemed as a culinary vegetable by the Greeks and Romans. It appears to have been cultivated in the time of Cato the Elder, 200 years B. C., and Pliny mentions a variety that grew in his time near Ravenna, of which three heads would weigh a pound. In this country it is considered as one of the most delicate of our culinary vegetables. The part of the plant used is about six or eight inches of the young shoot, which is considered to be fit for cutting when it has emerged two or three inches out of the ground, and has a firm, compact, roundish point, of a fine green color, slightly tinged with purple. Before the young shoots are boiled they have a disagreeable taste, due to a crystallizable principle called asparagin which produces sedative effects on the circulation. When properly prepared it is a wholesome and very useful article of diet. In medicine it is well known for its diuretic properties. It has been found beneficial in gravel and dropsy. The seeds have been dried as a substitute for coffee, which, when roasted or parched like coffee, they are said to resemble in flavor.

The indigo plant (*Indigofera sp.*) is a native of the West Indies, and has formerly been cultivated, on an extensive scale, in the Southern States. But the abundant supply from India rendered the cultivation unprofitable, and it has been superseded by cotton and rice.

The use of indigo as a dye is of great antiquity. It is mentioned by Dioscorides and Pliny, and is said to have been employed by the ancient Egyptians. It was, however, not much used in Europe till about three centuries ago. As met with in commerce indigo usually consists of cubical cakes, measuring between two or three inches. It is prepared by throwing bundles of the fresh cut plants into shallow vats and covering them with water, care being taken to keep them under the surface. After steeping for ten or twelve hours the liquid is run off into another vat and beaten with sticks from one and a half to three hours, in order to promote the formation of the blue coloring matter, which does not exist ready-formed in the tissues of the plants, but is generated during fermentation by the union of oxygen with a substance called indicum and which is contained in the plant. The coloring matter is then allowed to settle, the precipitation being accelerated by the addition of a small quantity of lime water or an alkaline solution, and the supernatant liquor drawn off and thrown away, while the precipitated matter is put into a boiler and kept at the boiling point for five or six hours. It is then spread upon frames covered with linen cloth and allowed to drain for twelve or fourteen hours, and when it is sufficiently solid, it is pressed, cut into cubes, stamped and dried for the market. Indigo is still cultivated in Florida for local use. It has been used for the cure of epilepsy, but large doses invariably produce nausea.

The okra plant (*Abelmoschus esculentus*) is a native of the West Indies and belongs to the Mallow family. It is cultivated for its green capsules, which abound in mucilage, and are used for thickening soup. The young parts are sometimes pickled like capers. The stem furnishes excellent fibres, but they have not yet been made serviceable for any economical purpose. The leaves are sometimes employed for emollient poultices. The roots, which are a foot or two long, are said to abound in mucilage.

The banana (*Musa sapientum*) has been cultivated from the most remote times in tropical climates for the sake of its fruit, which it

produces in enormous quantities with very little attention. In the ripe state the fruit is more or less mawkish, for the starch which abounds in the unripe fruit becomes converted into mucilage and sugar. It is highly nutritious, though less so than wheat and potatoes; yet the space occupied by their culture and the care required are so much less that Humboldt has calculated the produce of bananas, compared to that of wheat, as one hundred and thirty-three to one, and to that of potatoes as forty-four to one.

- The Irish potato (*solanum tuberosum*) is cultivated for its underground branches or tubers in all parts of the world. The introduction of the potato in England is ascribed to certain colonists under the auspices of Sir Walter Raleigh, who brought it from Virginia. The plant is indigenous in Chili and Peru. The potato contains water amounting to three-fourths of its weight, and the remaining fourth part being made up of starch, gum, sugar, albumen, vegetable fibre and a very small proportion of fatty matter.

Potatoes in cultivation are subject to a disease which is owing to the presence of a fungus called *batyris infestans*, which first attacks the leaves, causing discoloration, and thence spreads rapidly down the stem to the tubers. The principal effect of the disease consists in the increased quantity of water, the diminished quantity of starch and the conversion of the albumine into casein.

Potatoes contain a great quantity of starch, which is frequently mixed with wheat flour in the manufacture of bread. This adulteration can readily be detected by the microscope, especially on the addition of a solution of potash, which causes the starch granules of the potato to swell up, while no effect is produced on the starch grains of wheat. The pulp of the potato, after the extraction of the starch, becomes hard and horny when dried, and in this form it is used in the manufacture of snuff boxes.

Raw potatoes scraped are used as a popular cooling application to burns and scalds.

The tubers of this plant yield a coarse tasting brandy by distillation. The unripe berries of the potato plant are asserted to be narcotic, and an extract prepared from the leaves has been employed in coughs and spasmodic affections.

The varieties of the potato are very numerous, some are early and some late, and these differ in size, quality and color. It has

been found when a particular variety has been grown in the same soil, for any length of time, it degenerates and requires to be renewed either by seed, but more frequently by resorting to varieties which have been grown in different soil and locality.

As a culinary vegetable the potato is susceptible of being dressed in numerous ways, thus furnishing a great variety of palatable dishes. It is said that Parmentier, who did so much in France to promote the cultivation of the potato, gave a grand entertainment in Paris, at which Benjamin Franklin and Lavoisier, and many other celebrated men were present, of which every dish consisted of potatoes dressed in an endless variety of form and fashion; even the liquors that graced the potato banquet, were the produce of this precious tuberous stem.

The blue flag (*Iris versicolor*) is found in the greatest abundance in the prairie swamps of St Landry and Calcasieu. Its large, bright blue flowers shaded with yellow make it quite an object of attraction. They afford a fine blue infusion which is employed as a test of acids and alkalies. The recent root or rhizoma is without odor, and has a nauseous acrid taste which is imparted to water by decoction, and still more perfectly to alcohol. It possesses cathartic, emetic, and diuretic properties, and was much esteemed for its medicinal virtues by the Southern Indians. It is however seldom used by the profession, and it may be administered in substance decoction or tincture.

The Indian hemp (*apocynum cannabinum*) exudes a milky juice when wounded, which, when sufficiently dried, exhibits the properties of india rubber. It has a tough, fibrous bark, which by maceration affords a substitute for hemp, of which the Indians make twine, bags, fishing nets and lines, as well as linen for their own use. The root is the part of the plant which is medicinally employed. It is powerfully emetic and cathartic and sometimes diuretic, and promotes diaphoresis and expectoration. The disease in which it has been found most beneficial is dropsy. The bark of the root has also been employed in intermittents, and is considered only inferior to quinine in its antiperiodic power. The decoction is the most convenient preparation.

The gravel root (*eupatorium purpureum*) is a perennial herbaceous plant, from five to six feet high. It has been found in the low

grounds near Farmersville in Union parish. The root has a bitter, aromatic and astringent taste, and is said to operate as a diuretic, and hence its common name.

The stimulant *cnidoscolus* or tread softly (*cnidoscolus stimulosus*) is a plant peculiar to the Southern States. It grows to the height of two feet on the banks of Bundick's creek in Calcasieu. It flourishes in sandy soil. It has palmately lobed leaves from four to eight inches long. The segments are covered with spreading hair, which sting fearfully the bare feet of the negroes when they tread on them, from whence its common name is derived. It has whitish flowers, and it is said that its tuberous roots are eatable, like those of the cassava or manihot.

The ground nut (*apios tuberosus*) is an elegant climbing plant, having lateral clusters of brownish purple sweet-scented flowers. It grows luxuriantly in the low grounds near Mount Lebanon. It would make an attractive, ornamental climber of the gardens. The roots bear fleshy tubers, which are very nutritious, and might be substituted for potatoes during years of scarcity.

The horehound (*marrubium vulgare*) has been naturalized in America, and is found on Bayou Rapides near dwelling houses and stables and by the roadside. It has a strong, rather agreeable odor, which is diminished by drying. It possesses tonic properties. It is employed chiefly in domestic use, in catarrhal affections and diseases of the lungs attended with cough and copious expectoration. It is taken in the form of infusion. It is also a well known ingredient of cough-candy.

Common sage (*salvia officinalis*) grows spontaneously in the south of Europe, and is cultivated in the gardens on account of its aromatic properties. The leaves have a strong, fragrant odor, and a warm, bitterish, aromatic, somewhat astringent taste. They abound in volatile oil, which may be obtained by distillation with water, and contains a considerable proportion of camphor. Sage is slightly tonic and astringent. It was highly esteemed by the ancients; it is, however, at present but little used internally except as a condiment. The infusion is said to have been used in checking the sweats of hectic fever. It is also employed with honey and vinegar as a gargle in inflammation of the throat.

Balm (*melissa officinalis*) is a native of the south of Europe. It

has been introduced into this country and is much cultivated in the gardens. It has a fragrant odor very similar to that of lemons in the fresh state, but it should be cut before the appearance of the flowers. The taste is somewhat austere and slightly aromatic. The herb contains a minute proportion of yellowish essential oil. The infusion forms an excellent drink in febrile complaints, and balm tea has a tendency to promote perspiration.

Rue (*ruta graveolens*) is a native of the south of Europe, and is sometimes cultivated in the gardens. It is somewhat a shrubby plant, two or three feet high, with blueish green leaves pinnately divided. The powerful fetid odor and acrid taste of this plant depends on the presence of volatile oil. The ancients used it as a condiment, and believed it to possess the property of resisting the action of poison. For ages it was considered most effective to ward off contagion, and it is still employed to keep off noxious insects. It enters into the composition of the French perfume called "Vinegar of the Four Thieves." The Italians are stated to eat it as a salad. Shakspeare speaks of rue as the "herb of grace."

The whole herb has active medicinal properties, but the leaves are most commonly employed. The recent leaves have so much acrimony as to inflame and even blister the skin when much handled. Rue is a stimulant and antispasmodic. In moderate doses it is an emenagogue, and in large doses produces such irritation in the uterus as to bring on abortion.

Coriander (*coriandrum sativum*) is a native of Italy and the Levant, but is naturalized all over Europe and cultivated in America. All parts of the fresh plant are extremely fetid when bruised, while the globular fruit becomes fragrant by drying. The smell and taste of coriander seed are gratefully aromatic, and depend on a pale-yellow volatile oil, which may be obtained by distillation. Coriander has in a moderate degree the ordinary medicinal virtues of the aromatics. It was well known to the ancients, and is now principally employed to cover the taste of other medicines or correct their griping qualities.

Description of the New Species of Polyporus referred to in the lists Named and Described by Professor H. W. Ravenel, Aiken, South Carolina.

Polyporus (Inodermei) Featherman; nov. spec. Pileo rigido, coriaceo; setis crassis vestito; convexo-plano, nigrescente-umbrino;

porus ⁴otundis, minutis, dissepimentis, tenuibus, hymenio concolore.
Ad truncos dejectos.—*Ravenel*.

This new species of polyporus is stemless; the pileus is oblong, with a regularly rounded upper margin, and an irregularly linear lower margin. It is from two to four inches long, and from one to two inches wide, and not more than four lines in thickness. The pileus is rigid and coriaceous, of a dark brown on the upper surface, and its lower surface is covered with thick-set, stiff, bristly black hair. *g. g. g. g. g.*

~~Hemlak~~ It grows on logs and old trees in pine and oak woods, and was found in North Louisiana, near Minden and Homer, in the month of August.

FLORA LUDOVICIANÆ.

PHÆNOGAMOUS OR FLOWERING PLANTS.

RANUNCULACEÆ—*Crowfoot Family.*

Ranunculus pusillus Poir. var. *R. oblongifolius* Ell., *R. Texanus* Gr. & Engelm, Oblong-leaved Crowfoot, Calcasieu Prairies, Calcasieu.

MAGNOLIACEÆ—*Magnolia Family.*

Magnolia glauca L., Sweet Bay, Minden, Webster parish.

Magnolia umbrella Lam., *M. tripetala* Michx., Umbrella-leaved *Magnolia*, Baton Rouge, East Baton Rouge.

NYPHÆACEÆ—*Water Lily Family.*

Nymphæa odorata Ait., Pond Lily, Terrebonne Station, Terrebonne.

SARRACENIACEÆ—*Pitcher Plant Family.*

Sarracenia flava L., Trumpet-leaf, Watches, Pine swamps, Calcasieu.

FUMARIACEÆ—*Fumitory Family.*

Corydalis aurea Willd., Golden *Corydalis*, New Orleans, Orleans.

VIOLACEÆ—*Violet Family.*

Viola lanceolata L., Lance-leaved Violets, Pine-flats, Calcasieu. }

Viola pedata, L., Pedate Violet, Pine-flats, Calcasieu.

CISTACEÆ—*Rock-Rose Family.*

Helianthemum Carolinianum Mich., Carolina Rock-Rose, Pine-flats, Calcasieu.

Lechea^α *minor* Lam., *L. racemulosa* and *S. tenuifolia* Mich.^{β, γ} Small-leaved *Lechea*^α, Pine-flats, Calcasieu.

DROSERACEÆ—*Sundew Family.*

Drosera brevifolia Pursh, Short-leaved Sundew, Pine Woods, Lake Charles, Calcasieu.

HYPERICACEÆ—*St. John's Wort Family.*

Hypericum pilosum, Walt., Hairy Hypericum, Cherry Ridge, Union.

Hypericum maculatum, Walt., Spotted Hypericum, Bastrop, Morehouse.

Hypericum Drummondii, Tor. and Gr., Drummond's Hypericum, Farmersville, Union.

PORTULACACEÆ—*Purslane Family.*

Claytonia Virginica, L., Virginia Spring Beauty, Opelousas, St. Landry.

Portulacca grandiflora, Showy Purslane, cultivated, native of Africa.

MALVACEÆ—*Mallow Family.*

Abelmoschus esculentus, Okra, cultivated, native of West Indies.

OXALIDACEÆ—*Wood Sorrel Family.*

Oxalis violacea, L., Purple Wood Sorrel, Bundick's creek, Calcasieu.

RUTACEÆ—*Rue Family.*

Ruta graveolens, L., Common Rue, cultivated, native of south of Europe.

Ailanthus glandulosa, Desf., Tree of Heaven, introduced, native of China and Japan.

ANACARDIACEÆ—*Cashew Family.*

Rhus venenata, D. C., Poison Alder, O. Seminary, Rapides.

Rhus aromatica, Ait., Aromatic Sumac, Ringgold, Bienville.

VITACEÆ—*Vine Family.*

Vitis Caribaea, D. C., Caribbean Grape, Bushy Creek, Calcasieu.

Vitis bipinnata, Tor. and Gr., *Ampelopsis bipinnata*, Michx., double primate grape vine, Baton Rouge, East Baton Rouge.

SAPINDACEÆ—*Soap-Berry Family.*

Sapindus marginatus Willd., Soap berry, Wild China tree, Lake Charles, Calcasieu.

ACEF^AACEÆ—*Maple Family.*

Acer rubrum L., Red Maple, Springville, Red River Parish.

POLYGALACEÆ—*Milkwort Family.*

Polygala verticillata L., Whorl-leaved Milkwort, Pine-flats, Calcasieu.

LEGUMINOSÆ—*Pulse Family.*

Trifolium reflexum L., Buffalo Clover, Prairie Mounds, Calcasieu; *Psoralea melilotoides* Michx., Melilot-like Psorale, Prairies, St. Landry and Calcasieu; *Wistaria frutescens* D. C. *Thyrsanthus fruitescens*, Ell., Shrublike Wistaria, Lake Charles, Calcasieu; *Indigofera*, Anil L., West India, Indigo Plant, Introduced, Marion, Union; *Vicia Leavenworthii* Tor. and Gr., Leavenworth's Vetch, Lake Charles, Calcasieu; *Lespedeza striata* Arnot., Striated Bush-Clover, Introduced, Grand Ecote, Natchitoches; *Lespedeza repens* Tor. and Gr., Creeping Bush-Clover, Bastrop, Morehouse; *Lespedeza violacea* Pers., Violet Bush Clover, Prairie, St. Landry; *Lespedeza violacea* Pers., var. *sessiliflora* Michx., ~~Sessile~~ ^{Sessile} flowered Bush-Clover, Homer, Claiborne; *Rhynchosia tomentosa* Tor. and Gr., var. *monophylla* Tor. and Gr., One-leaved Rhynchosia, Pine-flat, Calcasieu; *Apios tuberosa* Moench., Ground Nutt, Mount Lebanon, Bienville; *Phaseolus sinuatus* Nutt., Sinuate-leaved Bean, Bastrop, Morehouse; *Erythrina herbacea* L., Herbaceous Erythrina, Bushy Creek, Calcasieu; *Baptisia leucophaea* Nutt., Whitish-flowered Baptisia, Prairies, Calcasieu; *Baptisia leucantha* Tor. and Gr., White-flowered Baptisia, Prairie Swamps, Calcasieu; *Mimosa strigillosa*, Tor. and Gr., Hook-prickled Sensitive Plant, Prairies, Calcasieu.

ROSACEÆ—*Rose Family.*

Rosa Carolina L., Carolina Rose, Bastrop, Morehouse.

Crataegus flava Ait., Yellow Hawthorn, Tree, Grand Ecote, Natchitoches.

Mespilus Japonica, Japan *Mespilus*, tree, introduced, native of Japan.

ONAGRACEÆ—*Evening Primrose Family.*

Gaura Lindheimeri, Gr. and Engelm, Lindheimer's *Gaura*, prairies, Calcasieu.

Oenothera linearis Michx., Linear-leaved Evening Primrose, Grand Coteau, St. Landry.

Oenothera fruticosa L., shrubby *Oenothera*, Grand Coteau, St. Landry.

Oenothera fruticosa, var. *hirsuta*, Tor. and Gr., Hirsute Evening Primrose, Grand Coteau, St. Landry.

Oenothera linifolia Nutt, Pine-leaved Evening Primrose, prairies, St. Landry.

Ludwigia linearis, Walt., Linear-leaved seed-box, Ville Platte, St. Landry.

Myriophyllum scabratum, Michx., Rough-leaved Water Milfoil, prairie swamp, St. Landry.

Myriophyllum, *heterophyllum*, Michx., Various-leaved Water Milfoil, prairie swamp, St. Landry.

UMBELLIFERÆ—*Parsley Family.*

Polytaenia Nuttallii, D. C., Nuttall's *Polytaenia*, prairies, St. Landry.

Eryngium Yuccaeifolium, Michx., Bear-grass-leaved Button Snake-root, Bastrop, Morehouse.

Eryngium virgatum, Lam., Straight-stemmed Button Snakeroot, O. S., Rapides.

Coriandrum Sativum, L., Coriander, Cultivated, native of South of Europe.

CORNACEÆ—*Dogwood Family.*

Cornus sericea L., Red Osier, Bayou Rapides, Rapides.

CAPRIFOLIACEÆ—*Honeysuckle Family.*

Viburnum acerifolium L., Maple-leaved *Viburnum*, Mount Lebanon, Bienville.

Viburnum scabrellum, Tor. and Gr., Rough-leaved *Viburnum*, Ringgold, Bienville.

Viburnum dentatum L., Tooth-leaf *Viburnum*, Minden, Webster.

Viburnum nudum L., Naked Stalked *Viburnum*, Hummocks in pine flats, Calcasieu.

* *Viburnum odoratissimum*, Sweet-scented *Viburnum*, cultivated.

RUBIACEÆ—*Madder Family*.

Galium uniflorum Michx., One-flowered *Galium*, Mount Lebanon, Bienville.

Galium trifidum L., Dyer's Clevers, Goose-Grass, Nez Pique, Calcasieu.

Oldenlandia ^{*purpurea*} prepared Gray, Purple Bluets, Six-mile creek, Calcasieu.

Gardenia grandiflora, Cape Jessamine Cultivated. Native of Cape of Good Hope. *an*

Bodleya Lindleyana, Lindley *Bodleya*, cultivated.

VALERIANÆ—*Valerian Family*.

Fedia radiata Michx., radiate flowered, Lamb-Lettice, Lake Charles, Calcasieu.

COMPOSITÆ—*Composite Family*.

Elephantopus tomentosa L., *E. nudicaulis* Ell., Soft-haired Elephant's Foot, Farmersville, Union.

Liatris scariosa, Willd., *L. spheroidia* Michx., Ragged Button Snakeroot, Springville, Red River parish.

Eupatorium aromaticum L., Aromatic *Eupatorium*, Ouachita tity, Union.

Eupatorium purpureum L., Purple-flowered *Eupatorium*, Farmersville, Union.

Eupatorium linearifolium Walt., Linear-leaved *Eupatorium*, Homer, Claiborne.

Aster phyllolipsis Tor. and Gr. Scaly-leaf Aster, O. Seminary, Rapides.

Erigeron tenue, Slender *Erigeron*, Grand Coteau, St. Landry.

Diplopappus linearifolius Hook., Linear-leaved *Diplopappus*, Old Seminary, Rapides.

Solidago nitida, Shining Solidago, Old Seminary, Rapides.

Solidago tenuifolia Pursh., Slender-leaved Solidago, Minden, Webster.

Solidago Boottu Hook., Boot's Solidago, Minden, Webster.

Solidago caesia L., Grayish-leaved, Old Seminary, Rapides.

Isopappus divaricatus Tor. and Gr., *Chrysopsis divaricata* Nutt., *
Diffuse branches, Isopappus, Sparta, Bienville.

Chrysopsis Mariana Nutt, Mariana's Golden Aster, Sparta Bienville.

Silphium Scaberrimum Ell., Rough-leaved Silphium, Bastrop, Morehouse.

Silphium perfoliatum L., var., Perfoliate Silphium, Bastrop, Morehouse.

Heliopsis laevis Pers., Smooth Heliopsis, Lake Charles, Calcasieu.

Echinacea angustifolia D. C., Narrow-leaved Echinacea, prairies and pine flats, Calcasieu.

Rudbeckia fulgida Ait., Bright-leaved Rudbeckia, Bastrop, Morehouse.

Helianthus strumosus L., Strummous Helianthus, Bastrop, Morehouse.

Coreopsis verticillata L., Whorl-leaved Coreopsis, Marion, Union.

Hymenopappus scabiosæus L'Herit., Scurfy Hymenopappus, pine flats, Calcasieu.

Leptopoda fimbriata Tor. and Gr., Fringe-flowered Leptopoda, pine flats, Calcasieu.

Marshallia lanceolata, Pursh., Lance-leaved Marshallia, pine flats, Calcasieu.

Cacalia ovata Walt., Ovate-leaved Cacalia, prairies, St. Landry.

Apogon humilis Ell., Low-stemmed Apogon, Bayou Rapides, Rapides.

Krigia Carolina, Nutt., *K. leptophylla* D. C., Carolina Krigia, Grand Coteau, St. Landry.

Lactuca elongata, var. *integrifolia* Muhl., Entire-leaved Lettuce, Mt. Lebanon, Bienville.

Tagetes patula, French Marigold, Cultivated, Native of Tropical America.

ERICACEÆ—Health Family.

Vaccinium arboreum Michx., Tree-like Blueberry, Old Seminary, Rapides.

Vaccinium myrsinites Michx., Myrtle-leaved Blueberry, Old Seminary, Rapides.

AGUIFOLIACEÆ—*Holly Family.*

Ilex ambigua Chapm., Ambiguous Holly, Old Seminary, Rapides.

STYRACEÆ—*Storax Family*

Styrax pulverulentum, Michx., powdery-leaved storax, Lacasien Bayou, Calcasieu.

Symplocos tinctoria L'Herit, sweet-leaf, Bushy Creek, Calcasieu.

EBENACEÆ—*Ebony Family.*

Diospyros Virginiana L., persimmon, Lake Charles, Calcasieu.

PLANTAGINACEÆ—*Plantain Family.*

Plantago heterophylla, Nutt., various-leaved plantain, Opelousas, St. Landry.

LENTIBULACEÆ—*Bladderwort Family.*

Urticularia cornuta, Michx., horned bladderwort, pine swamps, Calcasieu.

Pinguicula pumila, Michx., low-stemmed butterwort, pine flats, Calcasieu.

SCROPHULARIACEÆ—*Figwort Family.*

Verbascum Blattaria L., Moth Mullein, naturalized, Minden, Webster.

Gratiola pilosa, Michx., Hair Hedge-Hyssop, Marion, Union.

Gratiola sphaerocarpa, Ell., round-fruited hedge-hyssop, Opelousas, St. Landry.

Conobæa multifida, Benth., cut-leaved conobæa, Port Hudson, East Feliciana.

Castilleja coccinea, Spreng., painted cup, prairies, St. Landry and Calcasieu.

Schwalbea Americana, L., chaff-seed, pine flats, Calcasieu.

Pedicularis Canadensis, L., Lousewort, pine flats, Calcasieu.

ACANTHACEÆ—*Acanthus* Family.

Dipteracanthus oblongifolius, Chapm., *Ruellia oblongifolius*, Michx., long-leaved *Ruellia*, Farmersville, Union.

VERBENACEÆ—*Vervain* Family.

Verbena canescens, Kunth., Hoary-leaved Vervain, Bastrop, Morehouse.

Clerodendron, (*Siphonanthus*), Turk's-head, introduced, waste places, East Baton Rouge.

LABIATÆ—*Mint* Family.

Hedeoma hispida Pursh., Hispid-leaved Penny royal, Probably introduced, O. Seminary, Rapides.

Melissa officinalis L., Balm, introduced, Homer, Claiborne.

Salvia officinalis L., garden sage, cultivated, native of South of Europe.

Scutellaria pilosa Michx., Hairy scullcap, Homer, Claiborne.

Marrubium vulgare L., Horehound, introduced, Bayou Rapides, Rapides.

Physostegia Virginiana Benth., var. *P. denticulata*, Toothed-leaved False Dragon Head, Lake Charles, Calcasieu.

POLEMANIACEÆ—*Polemnium* Family.

Phlox Walteri Chapm., Walter's Phlox, prairies and pine-flats, Calcasieu.

Phlox glaberrima L., Smooth Phlox, Bastrop, Morehouse.

CONVOLVULACEÆ—*Convolvulus* Family.

Quamoclit vulgaris Choisy., Cypress-Vine, introduced, Baton Rouge, East Baton Rouge.

Evolvulus sericeus Swartz. Silk-leaved *Evolvulus*, Lake Charles, Calcasieu.

SOLANACEÆ—*Nightshade* Family.

Solanum tuberosum L., Potato, Cultivated, Native of Chili and Peru.

Solanum Melongena L., Egg Plant, Cultivated, Native of South America.

Cestrum (?) Escaped from the gardens, Native of Brazil.

APOCYNACEÆ—*Dogbane Family.*

Apocynum cannabinum L., Indian Hemp, Lake Charles, Calcasieu.
Amsonia Tabernæ montana Walt., *A. salicifolia* Pursh., Willow-
 leafed Amsonia, Lake Charles, Calcasieu.

ASCLEPIADACEÆ—*Milkweed Family.*

Asclepias variegata, L., Variegated Milkweed, Bushy Creek, Calcasieu.

Acerates paniculata, Decaisne, Bunch-flowered Acerates, prairies and pine flats, Calcasieu.

OLEACEÆ—*Olive Family.*

Ligustrum Japonicum, Japan Privet, tree, introduced; native of Japan.

NYCTAGINACEÆ—*Four O'Clock Family.*

Boerhaavia erecta L., Straight-stemmed Boerhaavia, Homer, Claiborne.

PHYTOLACCACEÆ—*Pokeweed Family.*

Rivina laccis, L., *R. pertulacoides*, Nutt., Smooth Rivina, New Orleans, Orleans.

AMARANTACEÆ—*Amaranth Family.*

Froelichia Floridana, Moquin., Florida Froelichia, Sparta, Bienville.

EUPHORBIACEÆ—*Spurge Family.*

Euphorbia maculata, L., Spotted-leafed Spurge, Sparta, Bienville.
Euphorbia cordifolia, Ell., Heart-leafed Spurge, Sparta, Bienville.
Euphorbia humifusa, Engelm., Prostrate Spurge, Baton Rouge, East Baton Rouge.

Cnidoscylus stimulosus, Gray, *Iatropha stimulosus*, Michx., Stinging Cnidoscylus, Bundick's Creek, Calcasieu.

URTICACEÆ—*Nettle Family.*

Boehmeria cylindrica, Willd., Cylinder-stemmed False Nettle, Farmersville, Union.

Boehmeria nivea ? Ramie, cultivated; native of China.

JUGLANDACEÆ—*Walnut Family.*

Carya olivaeformis Nutt., Pecan nut, Lake Charles, Calcasieu.

CUPULIFERÆ—*Oak Family.*

Carpinus Americana Michx., Hornbeam, Springville, Webster.

MYRICACEÆ, WAX—*Myrtle Family.*

Myrica cerifera L., var. *M. pumila* Michx., Low shrubbed Wax-myrtle, Pine-flats, Calcasieu.

BETULACEÆ—*Birch Family.*

Alnus serrulata Ait., Common Alder, Farmersville, Union.

ORCHIDACEÆ—*Orchis Family.*

Calopogon parviflorus Lindl., Small-flowered Calopogon, pine swamps, Calcasieu.

Calopogon pulchellus R. Br., Fair-flowered Calopogon, pine barrens, Rapides.

Platanthera cristata Lindl., Crest-flowered Platanthera, Homer, Claiborne.

Bletia aphylla Nutt., Leafless Bletia, Minden, Webster.

AMARYLLIDACEÆ—*Amaryllis Family.*

Pancratium rotatum Ker., P. Mexicanum, Wheel-flowered Pancratium, Lake Charles, Calcasieu.

Agave Virginica L., Virginia Agave, Ringgold, Bienville.

HEMODORACEÆ—*Bloodwort Family.*

Aletris farinosa L., Mealy-flowered Star-Grass, prairie and pine-flats, Calcasia.

IRIDACEÆ—*Iris Family.*

Iris versicolor L., Variegated Iris, prairie swamps. St. Landry and Calcasieu.

Sisyrinchium Bermudiana L., Blue-eyed grass, prairies, St. Landry and Calcasieu.

Sisyrinchium anceps, Two-edged stemmed *Sisyrinchium*, prairies, Calcasieu.

LILIACEÆ—*Lily Family.*

Allium mutabile Michx., Changeable Wild Onion, prairies, St. Landry, Pine-flats, Calcasieu.

Allium striatum Jacq., Striate-leaved Wild Onion, prairies, and pine-flats, Calcasieu.

Hemerocallis fulva, Common Day Lily, Cultivated, native of Levant.

Hyacinthus orientalis, Hyacinth, Cultivated, native of Levant.

Asparagus officinalis L., Asparagus, Cultivated, native of England.

JUNCACEÆ—*Rush Family.*

Cephaloxys flabellata, Desv., *Juncus repens* Michx., Fan-branched *Cephaloxys*, Minden, Webster.

COMMELYNACEÆ—*Spiderwort Family.*

Tradescantia rosea Vent., Rose-flowered Spiderwort, Opelousas, St. Landry.

XYRIDACEÆ—*Yellow-Eyed Grass Family.*

Xyris flexuosa Muhl., *Xyris bulbosa* Kunth., Flexible-stemmed Yellow-Eyed Grass, Grand Ecore, Natchitoches.

MUSACEÆ—*Musa Family.*

Musa Sapientium, Banana, Caldwell, Native of West Indies.

CYPERACEÆ—*Sedge Family.*

Fuirena squarrosa, Mich. var. *aristulata*, Tor., Bristle-fruited *Fuirena*, Homer, Claiborne.

Eleocharis acicularis, R. Br., Bristle-headed Spike Rush, Minden, Webster.

Scirpus pungens, Vahl., S. Americanus, Pers., American Bulrush, Homer, Claiborne.

Isolepis carinata, Hook and Arn, Carinate *Isolepis*, prairies, St. Landry.

Isolepis ciliatifolia, Tor., *Scirpus ciliatifolius*, Fringe-leaved *Isolepis*, Minden, Webster.

Rhynchospora miliacea, Gray, *R. sparsa* Ell., Millet-fruited Beak Rush, Swamps, Calcasieu.

Carex hirsuta, Willd., Hirsute Sedge, Pine Swamps, Calcasieu.

Carex intumescens, Budge., *C. folliculata*, Ell., Inflated Carex, pine swamps, Calcasieu.

Carex polytrichoides, Muhl., Hairy Carex, pine swamps, Calcasieu.

GRAMINEAE—*Grass Family.*

Aristida oligantha, Mich., Few-flowered Wire Grass, Grand Ecore Natchidoches.

Eragrostis megastachya, Link., Large-spiked Eragrostis, Homer, Claiborne.

Eragrostis conferta, Trin., Compact-flowered Eragrostis, Ouachita river, Caldwell parish.

Eragrostis pilosa, L., Hairy Eragrostis, Baton Rouge, East Baton Rouge.

Festuca tenella, Willd., Slender Fescue grass, Bayou Rapides, Rapides.

Bromus ciliatus, L., var., purgans, Gray, Ciliate Brome Grass, Homer, Claiborne.

Bromus secalinus, L., Rye-fruited Brome Grass, Baton Rouge, East Baton Rouge.

Elymus striatus, Willd., Striated Lyme Grass, Mount Lebanon, Bienville.

Danthonia spicata, Beauv., Spike-flowered Danthonia, Opelousas, St. Landry.

Phalaris intermedia, Bosc., *P. Americana*, Ell., *P. microstachya*, D. C., Middle-sized Phalaris, Opelousas, St. Landry.

Phalaris indermedia, var. *angusta*, Nees., Narrow-leaved Phalaris, Lake Charles, Calcasieu.

Paspalum distichum L., Double Spiked Paspalum, Cheneyville, Rapides.

Paspalum dilatatum Poia., Broad-spiked Paspalum, Ouachita River, Ouachita.

Paspalum Barbatum Shultes., Bearded Paspalum, prairies, St. Landry.

Paspalum undulatum Poir., *P. purpurascens* Ell., *P. plicatum* Mchx., Wavy Paspalum, Ouachita River, Ouachita parish.

Panicum anceps L., two-headed Panic-Grass, Mount Lebanon, Bienville.

Panicum dichotomum, var. ^{tu}*ciliatum* Ell., Ciliate Panic-Grass, Bastrop, Morehouse.

Panicum latifolium L., Broad-leaved Panic-Grass, Bushy Creek, Calcasieu.

Panicum nervosum Ell., Nerve-leaved Panic-Grass, prairies, Calcasieu.

Tripsacum dactyloides L., Gama-Grass, Cherry Ridge, Union.

Andropogon furcatus ^{It}*Spreng.*, Fork-branched Broom-Grass, Ringgold, Bienville.

CRYPTOGAMOUS OR FLOWERLESS PLANTS.

MUSCI—*Mosses.*

Hypnum Ludovicianum, Aust., Louisiana hypnum, North Louisiana.

Hypnum serrulatum, Hedw., serrate-leaved hypnum, Baton Rouge, East Baton Rouge.

Leskea obscura, Hedw., obscure leskea, pine flats, Calcasieu.

Clasmatodon parvulus, Hampe, small-leaved clasmatodon, Baton Rouge, East Baton Rouge.

Thelia hirtella, Sul., rough-leaved thelia, Baton Rouge, East Baton Rouge.

Atrichum undulatum, Beauv., wavy-leaved atrichum, Baton Rouge, East Baton Rouge.

Polytrichum commune, L., common polytrichum, Farmersville, Union.

Barbula coespitosa, Schwaeg., tufted barbula.

Pogonatum brachyphyllum, Mich., small-leaved pogonatum.

HEPATICE—*Liverwort.*

Frulania Drummondii, H. and W., Drummond's *Frulania*.

Frulania æolitis, Nees, *Æolian frulania*, Mount Lebanon, Bienville.

Frulania Caroliniana, Sul., Carolina *Frulania*, Mount Lebanon, Bienville.

Frulania squarrosa, Ragged-leaved *Frulania*, Baton Rouge, East Baton Rouge.

Scapania nemorosa, Nees var. *Schweinizii*, Schweiniz's *Frulania*, Sparta, Bienville.

Chiloscyphus polyanthos, Corda, Many-flowered *Chiloscyphus*, pine flats, Calcasieu.

Phragmicoma xanticarpæ, Yellow-fruited *Phragmicoma*, Baton Rouge.

Lejeunia phylloloba, Lobe-leafed *Lejeunia*, Farmersville, Union.

Lejeunia calcarea, Libert., Calcareous *Lejeunia*.

Lejeunia parvula, Small-leafed *Lejeunia*, Baton Rouge.

Lejeunia serpyllifolia, Libert., Thyme-leafed *Lejeunia*.

Jungermannia catenulata, Heal., Chain-leafed *Jungermannia*.

Plagiochila undata, Sul., Wave-leafed *Plagiochila*.

Calypogeia, Trichomanis Corda, Trichoman's *Calypogeia*.

Madotheca platyphylla, Dum., Broad-leafed *Madotheca*.

Reboulia hemisphaerica, Raddi, Hemispherical *Reboulia*, Baton Rouge.

Riccia lutescens, Schw., Muddy *Riccia*, Baton Rouge.

Aneura palmata, Nees, Palmate *Aneura*.

LICHENES—*Lichens*.

Collema pulchella, Ach., Beautiful *Collema*, Nez Pique, Calcasieu.

Cladonia pyxidata, Box-fruited *Cladonia*.

Sticta crocata, Yellow *Sticta*.

FUNGI—*Mushroom Family*.

Agaricus salignus P., Willow Mushroom, Baton Rouge, East Baton Rouge.

Agaricus corticola P., Bark-like Mushroom, Baton Rouge, East Baton Rouge.

Agaricus penetrans Fr., Penetrating Mushroom, Baton Rouge, East Baton Rouge.

Agaricus crocosporus Berk. and Curt., Yellow-spored Mushroom, Baton Rouge, East Baton Rouge.

Agaricus Curtisii Berk., Curtis' Mushroom, Baton Rouge, East Baton Rouge.

Russula abietinis Fr., Leathery-*Russula*, pine flats, Calcasieu.

Lactarius (?), Pine flats, Calcasieu.

Cantharellus (?), Sparta, Bienville.

Lentinus tigrinus Fr., Tiger-spotted *Lentinus*, Baton Rouge, East Baton Rouge.

Lentinus (?), Pine flats, Calcasieu.

Lenzites strata Fr., Prostrate *Lenzites*, Mount Lebanon, Bienville.

Lenzites n. sp. (?), North Louisiana.

Boletus retipes, Berk. and Curt., Netted-stiped *Boletus*, Mount Lebanon, Bienville.

Boletus Ananas, Curtis, Anana *Boletus*, Minden Webster.

Polyporus serapopus Fr., Baton Rouge, East Baton Rouge.

Polyporus versicolor Fr., Various-colored *Polyporus*, Baton Rouge, East Baton Rouge.

Polyporus fociola, Home-grown *Polyporus*, Pine-flats, Calcasieu.

Polyporus Curtisi Berkl., Curtis' *Polyporus*, Nez Pique, Calcasieu.

Polyporus hirsutus Fr., Hirsute *Polyporus*, Pine-flats, Calcasieu.

Polyporus adustus Fr., Burnt *Polyporus*, Pine-flats, Calcasieu.

Polyporus brumalis Fr., Winter *Polyporus*, Sparta, Bienville.

Polyporus beisulcis Fr., Minden, Webster.

Polyporus igniarius Fr., Fire-producing *Polyporus*, Home, Claiborne.

Polyporus Schweinitzii Berk., Schweinitz's *Polyporus*, Farmersville, Union.

Polyporus Feathermani Rav. n. sp., Featherman's *Polyporus*, North Louisiana.

Daedalia glaberrima Berk. and Curt. Smooth *Daedalia*, Minden, Webster.

Hydnum Rhodis Schw., Rhodis' *Hydnum*, Baton Rouge, East Baton Rouge.

Hydnum (?), Nez Pique, Calcasieu.

Telephora terrestris Ehrh., Terrestrial *Telephora*, Sparta, Bienville.

Stereum striatum Fr., Striate *Stereum*, Baton Rouge, East Baton Rouge.

Stereum spadiceum Fr., Nut-brown *Stereum*, Baton Rouge, East Baton Rouge.

Stereum fasciatum Schw., Crowded *Stereum*, pine-flats, Calcasieu.

Stereum achroceo-flavum Schw., Pale yellow *Stereum*, Baton Rouge, East Baton Rouge.

Stereum frustulosum, Fr., Crumb-like *Stereum*, Farmersville, Union.

Stereum lobatum Fr., Lobed Stereum, Baton Rouge, East Baton Rouge.

Stereum bicolor Berk., Two-colored Stereum, Baton Rouge, East Baton Rouge.

Corticium scutellatum Berk. & Curt., Shield-like Corticium, Minden, Webster.

Guepinia spathularia, Fr., Sparta, Beinvillie.

Clavaria acuta Fr., Acute Clavaria, pine-flats, Calcasieu.

Clavaria (?), Sparta, Bienville.

Lycoperdon pyriforme P., Pear-shaped Puff-ball, Baton Rouge, East Baton Rouge.

Lycoperdon cyathiforme, Cup-shaped Puff-ball, Pine-flats, Calcasieu.

Lycoperdon giganteum, Gigantic Puff-ball, Farmersville, Union.

Lycoperdon gemmatum Fr., Budded Puff-ball, Pine-flats, Calcasieu.

Schleroderma geaster Fr., Earth-growing Schlerodorma, Baton Rouge, East Baton Rouge.

Lycogala epidendrum L., Tree-growing Lycogala, Sparta, Bienville.

Stemonites fusca Roth., Dark-colored Steminites, Farmersville, Union.

Cyathus campanulatus Fr., Bell-shaped Cyathus, Sparta, Bienville.

Geaster hygrometricus Pers., Hygrometrical Geaster, Sparta, Bienville.

Diplodia Buxi Fr., Box-leaf Diplodia, Baton Rouge, East Baton Rouge.

Asteroma Rosæ Libert., Rose-leaf Asteroma, Baton Rouge, East Baton Rouge.

Uredo phaseoli, D. C., bean-leaf uredo, Baton Rouge, East Baton Rouge.

Uredo elaphantopodis, Schweinz., elephant's-foot-leaf uredo, Minden, Webster.

Uredo solidaginis, D. C., golden-rod-leaf uredo, Baton Rouge, East Baton Rouge.

Uredo polygoneum, D. C., knot-grass-leaf uredo, Baton Rouge, East Baton Rouge.

Uredo prunastri, D. C., peach-leaf uredo, Baton Rouge, East Baton Rouge.

Atractium flammeum, Burt. and Rav., red *atractium*, Baton Rouge, East Baton Rouge.

Epicoccum sphaerospermum, Bert. and Cart., ^{newly found} ~~crane-leaf~~ *epicoc-*
cum, Baton Rouge, East Baton Rouge.

Glenospora Curtisii, B. and Desn., Curtis' *glenospora*, Baton Rouge, East Baton Rouge.

Rhinotrichum Curtisii, Bert., Curtis' *rhinotrichum*, Baton Rouge, East Baton Rouge.

Peziza diversicolor, Fr. various-colored *peziza*, Baton Rouge, East Baton Rouge.

Propolis hysterina, Fr., late-growing *propolis*, Baton Rouge, East Baton Rouge.

Hysterium pinastri, Schrad., pine-leaf *hysterium*, Farmersville, Union.

Hypoxylon annulatum, Schw., articulate *hypoxylon*, Baton Rouge, East Baton Rouge.

Hypoxylon illitum, Schw., bedaubed *hypoxylon*, Baton Rouge, East Baton Rouge.

Hypoxylon concentricum, Bolt., concentric *hypoxylon*, Baton Rouge, East Baton Rouge.

Diatrype atro-punctata, Schw., black-dotted *diatrype*, Baton Rouge, East Baton Rouge.

Sphaeria pilifera, Fr., pill-bearing *sphaeria*, Baton Rouge, East Baton Rouge.

Sphaeria myriadea? D. C., myriad *sphaeria*, Farmersville, Union.

Meliola amphitricha, Fr., hairy *meliola*, Grand Coteau, St. Landry.

Strigula Feei, Mont., Fees' *strigula*, Baton Rouge, East Baton Rouge.

Hygrophorus cinnabarinus, Fr., cinnabar-colored *hygrophorus*, Baton Rouge, East Baton Rouge.

Peronospora pusilla, DeBurg, small *peronospora*, Baton Rouge, East Baton Rouge.

Dematium muscorum, Link., moss *dematium*, Baton Rouge, East Baton Rouge.

ALGÆ—SEAWEED TRIBE.

CISTIPHORÆ.

Scytonema minutum, Ag., Baton Rouge, East Baton Rouge.

DESMIDEE.

- Desmidium Schwarzii Ralf., Baton Rouge, East Baton Rouge.
 Cosmarium pyramidatum, Breb., Baton Rouge, East Baton Rouge.
 Cosmarium Batyrtis, Borg., Baton Rouge, East Baton Rouge.
 Closterium Ehrenbergii, Menckh., Baton Rouge, East Baton Rouge.
 Docidium minutum, Ralfs., Baton Rouge, East Baton Rouge.
 Penium digitus, Breb., Baton Rouge, East Baton Rouge.
 Xanthidium Brebinsonii, Ralfs., Baton Rouge, East Baton Rouge.

SIPHOPHYCEE.

- Vaucheria caespitosa, Ag., Baton Rouge, East Baton Rouge.

NEMATOPHYCEE.

- Ulothrix nucosa, Thur., Baton Rouge, East Baton Rouge.

MELANOSPERMEE.

- Delesseria Leprieurii, Mont., Grand Isle, Jefferson.

RHODOSPERMEE.

- Polysiphonia Clnei, Har., Grand Isle, Jefferson.

DIATOMACEE.

SWURELLEE.

- Synedra fulgens, Grev., Sea weed, Grand Isle.

STRIATELLEE.

- Rhabdonema Adriaticum, K., in Sea weed, Grand Isle.
 Grammatophora marina, Lyngb., in Sea weed, Grand Isle.

BIDULPHIEE.

- Bidulphia pulchella, Gray, in Sea weed, Grand Isle.

COCONEIDEE.

- Cocconeis scutellum, E., in Sea weed, Grand Isle.
 Cocconeis Placentula, E., in Sea weed, Grand Isle.

ACHNANTHEE.

- Achnanthes ventricosa, E., in Sea weed, Grand Isle.
 Achnantidium microcephalum, K., Baton Rouge, East Baton Rouge.

Infusoria.

Notommatata aurita, Pr.
Hydatina senta, Pr.
Polychaetus subquadratus, Pr.
Astasia contorta, Pr.
Arcella vulgaris, Pr.
Euglena longicaulis, Pr.
Epistilis nutans, Pr.
Dinocharis pocillum, Pr.

SHELLS COLLECTED IN LOUISIANA.

Arca Noae L., Ballast heap, New Orleans.
Cerithium nigrescens, Grand Isle, Jefferson.
Columbella fuscata, Sly., Ballast heap, New Orleans.
Pupa rupicola; Baton Rouge, East Baton Rouge.
Pupa fallax, Baton Rouge, East Baton Rouge.
Anadonta virens, Lea, Lake Pearl, Avoyelles.
Unio trapezoides, Lea, Lake Pearl and Lake Concordia, Avoyelles.
Unio nodulatus, Conr., Lake Charles, Calcasieu.
Unio apiculatus, Lea, Teche, St. Mary.
Unio pustulatus, Lea, Lake Pearl, Avoyelles.
Unio asper, Lea, Teche, St. Mary.
Unio plicatus, Lea, Lake Pearl, Avoyelles.
Unio calliginosus? Falls Red river, Rapides.
Unio cornutus, Bayou Cocodrie.
Unio anatonoides, Lea, Lake Pearl, Avoyelles.
Unio perplicatus, Conr., Lake Pearl, Avoyelles.
Unio glebulus, Say, Teche, St. Mary.
Unio purpuratus, Lam., Lake Pearl, Avoyelles.
Unio parvus, Barnes, Nez Pique, Calcasieu.
Unio Heydianus, Lea, Lake Pearl, Avoyelles.
 All of which is respectfully submitted.

A. FEATHERMAN,

Lecturer on Botany and Professor Louisiana State University.

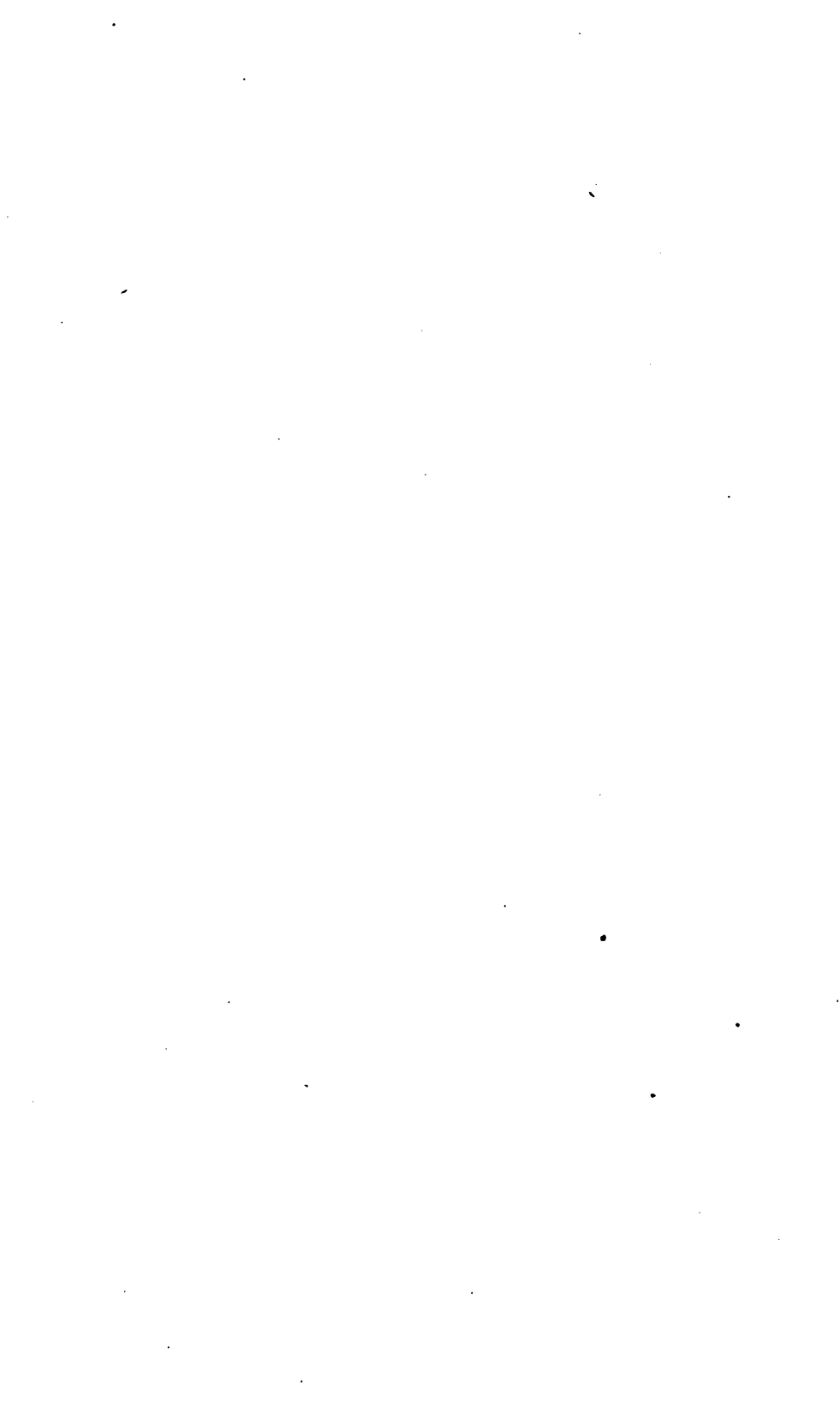
Respectfully forwarded to the Honorable Board of Supervisors.

D. F. BOYD,
 Superintendent.



THIRD ANNUAL REPORT
OF THE
GEOLOGICAL SURVEY OF LOUISIANA,
in extent
By F. V. HOPKINS, M. D.,

Surgeon, and Professor of Geology, Chemistry and Mineralogy in the Louisiana State University, member of the American Association for the Advancement of Science,
Corresponding member of the New Orleans Academy of Sciences, etc.



REPORT.

BATON ROUGE, December 31, 1872.

D. F. Boyd, Superintendent Louisiana State University:

SIR—The Geological survey of the State has made due progress during the year, although not according to the plan sketched out for it in my last report. It was there suggested that an examination of the smaller streams would be the shortest and easiest method of settling the points that were yet in dispute. Means for this purpose, however, were not afforded, and as the former reconnoissances had yet left many parts of the ground unvisited, it was decided to extend them in the same manner as before, parish by parish, only traveling more slowly, in order to locate accurately the boundaries of the formations. The results, in the main, corroborate the statements made last year, and vindicate the general correctness of the map then published. A new map on a large scale is in course of preparation, in which several alterations will appear, the principal of which will be noted below.

The observations of the year were confined to the parishes of East Baton Rouge, East and West Feliciana, Tensas, Madison, Carroll, Morehouse, Ouachita, Richland, Franklin, Catahoula, Rapides, Avoyelles and Pointe Coupee. This, even when added to the area previously examined, leaves much yet to be done, but it is hoped that the exploration of these parishes has been sufficiently thorough for the purposes of the survey, and that none of them will require to be re-visited.

It unfortunately happened that the map that was to have accompanied last year's report arrived too late for insertion in any copies excepting the few that were distributed from the University itself. A large portion of the edition is therefore still on hand, and it will be appended to the present communication also, with a description repeating briefly the substance of last year's remarks.

Besides the field-work accomplished, a large amount of labor has been spent on the arrangement of the cabinet, the determination of the fossils found in our Modified Drift, and the analysis of a few

soils, marls and lignites. These branches of the necessary survey work fall very heavily upon a geologist who has no assistants. Each one of them could occupy the full attention of one man with profit to the State; for true economy is always found in the division of labor. It has been only by disregarding the legal requirements of *four months* to be spent in survey work, and by devoting all of my spare time throughout the year to these subjects, that I could attend to them at all. There can be no doubt that if the main object of organizing the survey is to obtain a full knowledge of the geology of Louisiana in the shortest possible time and at the least expense, it would be better attained by separating it from the University and appointing several assistants besides the principal geologist, who should devote their whole time to the work until its completion. But its prime object was educational. It was begun with a view of accumulating for the use of the University full cabinets illustrative of the structure of our State, and of promoting a love for scientific research among the students, by engaging them practically in the extension of knowledge. Even their ends are not reached as yet for want of space for a properly arranged museum and laboratory. A class could not possibly work together profitably in our present cramped quarters; so that the students have been of no use to the survey, and the survey has been of equally little service to them. It is hoped that this evil will be remedied by a grant to the University of the means to make use of the great amount of talent concentrated within her walls. A laboratory where each cadet could be accommodated with a separate set of analytical apparatus, and a hall where each and every specimen could be displayed to advantage, are most urgently needed by our institution.

The preliminary map having been issued, the undersigned is busily engaged in collecting materials for a final report. These consist of sections, maps of important localities, data for the large map before mentioned, views of Louisiana scenery, and suites of fossils to illustrate our palaeontology. All of these should be engraved, and the expense attending the publication will be considerable. This fact can not be too often referred to in reports of progress like the present, for it has more than once happened in other States that after a survey had been sustained for years at a moderate annual expense, the results which had cost large sums in the aggregate and

embodied untold amounts of scientific labor, have been rendered useless by a false economy at its close. It is to be hoped that Louisiana will rather imitate such States as New York, Pennsylvania, Massachusetts, Vermont, Illinois, Iowa and California, whose reports are monuments of enlightened liberality, as well as mines of useful knowledge.

From the nature of these materials they can not yet be laid before you. The year's operations have, however, thrown fresh light upon some points connected with the post tertiary formations, and these I propose to discuss at present.

The post tertiary formations of Louisiana are divided into the Alluvium, Bluff Formation and Modified Drift. The order in which they are mentioned is the reverse of that in which they were made, and in which it is best to consider them in relating the history of their creation. It is nevertheless the most convenient in which to study them practically, as the newest overlie the others and are less impaired by denudation. The latest of all, moreover, is still progressing and the study of the laws of its growth is the best preparation for an endeavor to understand the causes of the phenomena presented by the others.

THE ALLUVIUM.

The alluvial deposits of the Mississippi river are already classic ground for the geologist. Hastily as Sir Charles Lyell examined them in 1845, he gathered facts sufficient to form the basis of a calculation of the number of years that it must have taken the river to make its present delta. (He estimated the time at 67,000 years. *Second Visit to the United States*, vol. 2, p. 188.) As the number was too high to suit the preconceived notions of many, there have been various efforts to reduce it. Foremost among these is that by General A. A. Humphreys, in his report on the Mississippi river (page 99), in which he states that the river flows even in the delta region, "in a channel belonging to a geological epoch antecedent to the present." As this would greatly diminish the depth that he had assigned to the alluvium, Sir Charles Lyell appealed to the testimony of the specimens taken from the artesian well at New Orleans in 1856. These specimens were submitted to Professor E. A. Hilgard, of Mississippi, for examination, and his report upon them

appeared in the fall of 1870. The professor therein takes the view that the alluvium proper beneath New Orleans is but thirty-one feet thick, arguing that the marine deposits below, to a depth of 650 feet, are of the Port Hudson group. I followed him last year in this idea, and quoted his list of shells under the head of the Bluff Formation.

My observations this season oblige me to modify this conclusion somewhat. Wishing to ascertain as accurately as possible the actual depth of the alluvium, I instituted a series of experiments upon the water of wells dug in the Port Hudson formation and in the bottom lands, respectively. I have found (as, indeed, Professor Hilgard had told me that he should expect) that the former contain a considerable proportion of sulphates and carbonates, while the latter show an excess of chlorides. This result is uniform, excepting where the wells happen to strike considerable beds of sand, when the waters are too pure to be distinguished. It is evident, therefore, that by testing the water of the deepest wells dug in the alluvium, it is possible to tell whether they pass through it into the underlying Port Hudson groupe or not. The patent wells that are made by simply driving a tube into the ground, offer great facilities for this research, as the water that they furnish comes necessarily from the bottom of the well only. On a trip that I took from Baton Rouge to the Arkansas line, I analyzed the water of various wells of from seventy to one hundred feet in depth, and in not a single instance found any other than the alluvial characteristics.

The alluvium, then, upon the upper part of the river being deeper, as a rule, than from seventy to one hundred feet, it is highly improbable that it is no deeper than thirty-one at the city of New Orleans. It is true that the artesian well passed at that depth from swamp deposits into marine; the question to be decided is, whether such a change is in this case a passage from one geological formation to another.

It is not necessarily so. The term "alluvium" is indeed so generally confined to river formations that we are apt to forget that these are but a small part of the strata that are forming in the present era. The fine blue clay of the Mediterranean, the chalk of the "Telegraphic Plateau" of the North Atlantic, and the deposits now settling in the Gulf of Mexico from the long brown line pro-

jected into it by the mighty Mississippi, are but marine equivalents of the alluvium proper. A vast bed of such marine equivalents now lies in front of our present delta, rendering the water shallow for a distance of ten miles from the passes. Here occurs a sudden slope that might be regarded as the proper continental slope of the present era, so greatly does it exceed that at the shore of the delta itself. The whole sea-bottom including this shallow margin is covered with living beings; and the recent beds, alluvial equivalents though they be, are full of their exuvial. Every advance that the delta makes in its progress toward the sea is necessarily based upon these recent beds. When, therefore, we dig through the river deposits and come to strata with marine shells, it does not follow that we have reached an antecedent geological formation, unless the fossils are those of extinct species.

Now the shells obtained beneath New Orleans are all of recent species, as far as known. There is no proof whatever, therefore, that the whole series of deposits may not be equivalents of the alluvium, instead of belonging to the Port Hudson group.

There are some reasons that lead to the supposition that they are very recent. The first of these has been already given, viz.: that as I have proved the river alluvium to be over one hundred feet in depth at various points between Baton Rouge and Arkansas, it ought to be even deeper at New Orleans, because that city is nearer the foot of the slope of the river valley. If we grant this, we are obliged to claim some of the upper marine beds as recent delta deposits, and Professor Hilgard has himself declared that no line can be drawn between these and the others.

The depth of 650 feet offers no difficulty to this supposition, but rather aids the argument by completing the analogy between the bluff period and the present. I have already alluded to the continental slope that occurs ten miles south of the passes. This slope follows the trend of the Gulf shore, almost irrespective of the protrusion of the delta. It owes its formation no doubt to the opposition offered by the waves of the gulf to the outflowing current of the river. The sediment is not allowed to spread far over the Gulf bottom, but is beaten back nearly to the shore. Now this cause was in full operation during the bluff period, only, as that was a time when the river was broader than now, owing to the de-

pression of the land, its current was less than at present, and the continental slope of that period ought to follow the general curve of the gulf shore even more accurately than does the modern one. The land has been raised since then, and the southern edge of the prairie region and the northern shores of Lakes Maurepas and Pontchartrain lie in about the anticipated direction. The chain of the five islands, however, protrudes beyond this line, so that the slope may lie nearer the city, but most probably *above it*. If so, and if the gulf of that day was as deep near the slope as at present, New Orleans may rest upon recent deposits as thick as the gulf is deep.

I do not regard the point as settled by the above considerations, but hope to extend my observations until the real situation of the bluff slope is ascertained. The volume of the alluvium and its age in years will then be calculable upon Lyell's plan, with a good degree of accuracy.

A few corrections are needed on the map in the area represented as alluvial. The swamp of Bœuf river, in the northeastern portion of Morehouse parish, was represented as alluvial because it is subject to overflow. It is found, however, to be of the bluff formation, i. e., if Port Hudson strata covered with yellow loam, deeply denuded by the current that flows through it at high water. The same is true of a triangular portion of Black river swamp, bounded on the north by Catahoula lake, on the west by Bayou Saline, and on the east by a line drawn from the middle of the lake to the mouth of Horsepen creek. The swamp at the mouth of Bayou D'Arbonne also is of the yellow loam.

THE BLUFF FORMATION.

The bluffs that bound the alluvial plain of the Mississippi and its tributaries contain three very distinct groups of strata, the "Port Hudson" below, and the Loess and yellow loam above. I propose to include these three under the name of "Bluff formation," because they form the bluffs, and were due to a continuous series of depressions of the land, that occurred after the period of our modified drift.

This nomenclature is natural, but is open to one criticism, viz.: that in 1855, Prof. Swallow, of Missouri, applied the same name to

the portion of the series that extends into the State of Missouri, which portion corresponds only to the group that is meant by "Loess."

It is impossible to spare so good a name, and equally so to allow it to be spoiled by limiting its technical meaning to only a part of what it expresses colloquially. I am aware, however, that the rule of priority should prevent any alteration in the meaning of a name that has once become current among scientific men, nor should I attempt to do so but for the following reasons:

Firstly.—The same rule should condemn Prof. Swallow's application of the term "bluff" to a formation that had been already named "Loess" by Prof. B. L. C. Wailes, of Mississippi, in 1854, and by Sir Charles Lyell in 1849.* His reason for doing so, viz.: that "Loess" was already applied to a formation upon the Rhine, with which our Loess could not be proved cotemperaneous,† is hardly sufficient. The word expresses "a fine calcareous silt with terrestrial fossils" in both cases. There is no assertion that the two formations are cotemporary, in thus naming one after the other, but merely an effort to attract attention to the fact of their great similarity. If then, the reasons for substituting "Bluff" for "Loess" were not good, the latter appellation should be retained, and the former left free to be applied anew.

Moreover, at the time that professor Swallow introduced the term it was supposed that the formation was a unit. He himself describes the beds so named as overlying the drift.‡ Professor Hilgard first discovered in 1869, that the bluffs at Port Hudson were older than the Loess although themselves overlying the drift. Who can doubt that if the position of these beds had been understood in 1855, Professor Swallow would himself have included them in the bluff formation, as I wish to do now?

Again, when a common every day word like "bluff" is used in a technical sense, it can only be because its ordinary acceptation is sufficiently accurate for scientific purposes. That accuracy would have been sufficient if no new group had been discovered. It can

* Wailes' Leg't. Geol. of Miss., 1854; p. 213. Lyell's Second Journey in the U. S. Vol. 2, p. 149.

† Geol. Missouri, I. and II. Rep.; p. 75.

‡ Geo. Mo. and Rep. 1855., p. 69.

only be restored by extending it to cover all the groups contained in the bluffs, so that the word may express geologically all that it does in common language.

This is my excuse for including the yellow loam also in the bluff formation. It will be seen from the following description that it covers the whole bluff area upon the map, and more, and that it was deposited at the lowest point of the "Champlain" depression. It is connected with the rest therefore by position, by similarity of cause and still more by similarity of appearance. It was the latter doubtless that caused Lyell to apply the word "Loess" indifferently to the bluffs at Port Hudson and to those of Mississippi, for the yellow loam that caps both alike is very silt like, and of almost the same color as the true Loess in the portion of the bluff that he examined. That he included it in his idea of the formation taken as a whole, is evident also from his rough little section on an east and west line from the Mississippi to the Atlantic, passing through Jackson, Mississippi.* He places Jackson just upon the eastern edge of the bluff. Now the true Loess does not reach nearly so far from the river, but the yellow loam does, and even further, according to Professor Hilgard.

Having rather neglected this formation in my former journeys, its lack of fossils and slight depths rendering it of subordinate geological interest, I this year undertook the study of it specially throughout the Ouachita region and portions of the drift and prairie areas. I find it to be of the greatest practical importance to the State, because, as it lies upon the surface, it forms the soils of most of our uplands, and frequently modifies for the better, areas that are commonly supposed to be pine barrens. It is subject to several variations in color and composition that render a somewhat minute account of its local changes necessary to the proper understanding of the structure of our State. At the risk of being tedious, I therefore offer the following description of my observations. Numerous specimens were brought home for analysis, but lack of time has prevented more than a determination of the proportions of lime, alumina iron and silica in a few of them, these constituents affording the main points of distinction between this group and others, since it contains no fossils.

* Second Journey to the United States, vol. 2, p. 196.

THE YELLOW LOAM.

This important formation consists generally of a single layer of clayey silt, retaining a remarkable fineness of character over large areas. Its color is principally yellow from the presence of the hydrated peroxide of iron; but where it has been subjected to the action of water containing vegetable acids in solution, the iron has been concreted into black or rust-colored nodules, the clayey base being then left nearly white. Occasionally the peroxide is not all hydrated, and a red color replaces the yellow. Where the underlying strata have furnished it with lime, as on Sicily island, it is almost undistinguishable from Loess. Upon the eastern side of the river it is sometimes brownish, as at Baton Rouge; at others yellow with white spots. It is from ten to twenty-five feet in thickness, but rarely reaches the latter figure. The extent of country covered by it is large, consisting of all the area represented as "bluff" upon the map, and much of the drift besides. It is remarkable for the uniformity with which it is found at various levels, proving its deposition since the occurrence of a large amount of denudation in even the older bluff strata themselves.

This may be well observed in traveling westward upon the Arkansas line from the Mississippi to the Ouachita. At first the road passes through a swamp belonging to the Mississippi bottom, and extending to Hill bayou, two miles west of Bayou Macon. Then it strikes the Bayou Macon hills, which are of yellow loam, overlying Port Hudson strata, and rise twenty feet above the swamp. These hills are the eastern edge of a rolling plateau, eight miles in width, that rising in the centre slopes westward to the Bœuf river swamp, which stretches for nine and a half miles westward, and is itself bottomed by yellow loam.

Passing the swamp the land gently rises above overflow to the banks of Bayou Bartholomew, which are alternately of this formation and of the reddish alluvium proper to that stream. This alluvium forms a swamp of some three miles in breadth at this point. We then reached hilly land rising sixty feet above the bayou, or about forty-five above the swamp. The structure of this high ground is well seen at Cora's Bluff, the residence of Mr. R. C. Payne, where six feet of yellow loam overlies forty-four feet of sand with fossiliferous gravel of the drift formation. Oak is the prevailing

growth from Bayou Macon to the Bartholomew, varied by a strip of short-leaved pine and mixed growth upon the eastern side of Bœuf river. The area between the Bartholomew and Ouachita, however, being so largely composed of drift material, is covered with pine in much greater proportion, and the oaks are frequently of the scrub variety so common in drift regions. The hills are again only the eastern edge of a plateau which slopes gradually westward to the Ouachita overflow. On the summit of Cora's Bluff the yellow loam is a little more sandy than elsewhere, but as we follow the slope westward it resumes its ordinary appearance at a slightly lower level. Several prairies diversify the surface of this plateau, whose soil is generally very poor. Seymour's and Dubute are the principal, within the limits of Louisian, but I also visited Line prairie, which is just north of the Arkansas border. Some, whose soil is sandy, appear to be of driftage, and to owe their sterility to the depth of sand which that formation here presents. Others lie flat and are covered with white clay with the iron rust concretions, that is one of the modifications of the yellow loam.

Prairie Dubute stretches north and south upon the western border of the Ouachita overflow, and is of a sandy silt that may be older than the loam. Levees and drainage would easily reclaim this tract, especially if combined with the use of fertilizers. It is only reached by the water during the highest overflows, and the size of the oaks that dot it here and there, as well as the rankness of the coarse prairie grass, show that the soil is better than usual in these spots. Why could not the culture of hay prove profitable upon such plains? The substitution of one variety of grass for another ought not to be a very difficult agricultural problem, and the perfect level of the surface renders them just the places for the use of the mowing machine.

Turning southward across the Bartholomew, on the road to Bastrop, we come again to yellow loam, lying low enough to be swampy (and a very sticky swamp it makes), but soon rising into gently swelling hills, upon which Bastrop stands. On former trips we have followed these hills eastward to Prairie Mer Rouge, where nine feet of it overlies a hill of tertiary sands and clays at a height of forty-three feet above the prairie. The prairie itself forms a fine body of fertile land of black swamp mould, underlaid with yellow

loam. Prairie Jefferson is said to be of a similar character, but I have never seen it. I have no doubt that returning eastward upon this parallel, through Bœuf river swamp and the Bayou Magon hills, we should still find the same soil as far as their eastern border; but my route led westward to Point Pleasant and then southwestward across the Ouachita at Rocky Row and thence to Trenton. Yellow loam was interrupted by alluvium just below Point Pleasant, but reappears on the western side of the Ouachita. Much of the lowlands on Bayou D'Arbonne, represented as alluvial on the map, are of yellow loam, denuded and not enriched by overflows.

The drift hills are reached again, on the road to Trenton, and are covered with the same deposit, often red from excess of iron, but retaining its silt-like fineness. In traveling from Monroe to Winnsboro, in Franklin parish, we pass first four miles of Ouachita alluvium, and then a ridge of drift and yellow loam, with short leafed pines. The drift marks are omitted in the map. They should occupy a strip on the western edge of the bluff patch lying west of the Lafourche Bayou. Next, the road leads through Lafourche swamp, which is covered with alluvium, and has sand hills on its eastern side. This sand resembles most a stratum that occurs in the bluff at Bayou Sara, and is probably of the same period, i. e. of the Port Hudson group. The sand continues four miles to Bœuf river, whose alluvium is fine and reddish, like that of Bayou Bartholomew. At Alto Landing, in Richland parish, four feet of this alluvium covers fifteen feet of a white clay with iron nodules, and ten feet of a yellow clay that look a good deal like the soils that we have been calling yellow loam. They pass laterally, however, into sand like that just mentioned, and are probably of the Port Hudson age. There are very similar instances in the sections at Baton Rouge, and above, whereas I do not know of a case of the passage of true yellow loam into coarse sand. The map should, therefore, be corrected by extending the Bluff area to the westward of the Bœuf.

Southeast of Alto an oakland region with gentle ridges running north and south, extends beyond Big Creek. The ridges are of the yellow and the hollows of the white variety of loam, with the usual iron concretions.

Three miles east of Big Creek we come again to the strip of short leafed pine that we passed when going westward on the Arkansas

line, just east of Boeuf River. It is here about five miles wide, Winnsboro being encircled by it. This change of growth appears to be caused by the presence of the sandy Port Hudson stratum, near the surface, as is seen on comparing the two following sections of wells on the pine-belt, one near the line and the other near Winnsboro.

MRS. C. SANDERS' WELL.

- | | |
|--|----------|
| 3. Yellow loam, with black surface soil..... | 7½ feet. |
| 2. Clayey sand with yellow streaks..... | 6 feet. |
| 1. White sand, very fine, to water..... | 10 feet. |

WELL NEAR WINNSBORO.

- | | |
|------------------------------------|----------|
| Yellow loam, brown on surface..... | 6 feet. |
| Yellow sandy clay..... | 10 feet. |
| Sand, fine as silt..... | 5 feet. |

I am told that the pines extend on the east side of Turkey creek almost to Deer creek, but they soon disappear on the road to Sicily Island, which passes along the Bayou Macon hills. These hills preserve much the same character that they have where we first struck them at Hill Bayou, near the line, the soil being a very fine yellow loam, often overlying the white clay with nodules of iron, and covered with an excellent growth of oaks of various kinds. Deer creek interrupts them with a mile of alluvium, but the main portion of Sicily Island is only their continuation, forming a sort of step between a group of high hills in the southwest corner of the island and the alluvium of the Tensas river on the east. The southern half of this body of land is the most fertile, containing more lime than is usual in this formation, though a much smaller proportion than is found in the Loess, derived no doubt from an excellent stratum of marl that occurs in the high hills close by, and which has already been reported upon, under the head of the Grand Gulf group, to which it belongs. The lime imparts to the loam the property of washing in perpendicular walls, like the snail shell silt of Natchez, which belongs to the Loess. The absence of shells, and its stratigraphic continuity with the Bayou Macon hills, are sufficient to distinguish it. The only locality of true snail shell silt that has been found as yet upon the western side of the Mississippi, is the summit of the very hill at whose base the yellow loam is most silt like. It is near Mr. Kendrick's place, upon which the marl occurs. The hill

is one hundred feet high, and composed of twenty-four feet of silt with concretions of lime containing helices, twenty-six feet of drift gravel, and thirty feet of Grand Gulf tertiary exposed, while the remaining twenty feet are covered by the step of yellow loam, forming a perpendicular wall upon the road side. We shall have more to say concerning this locality when we have concluded the remaining observations upon the loam and silt, and attempt to unravel their history and their relation to each other and to the Port Hudson group.

Bayou Louis bounds Sicily island on the south, and there is nothing but alluvium to the south of it, so that we must cross the Ouachita at Harrisonburg to follow the loam. It is met with again on the southern flank of the pine hills about a mile to the west, again at five miles, and yet again near Bushley creek. The latter exposure passes laterally into Catahoula prairie, which is somewhat lower in level, and composed almost entirely of the white modification, with iron "buckshot." The map represents the bluff step from Harrisonburg to the prairie too wide, and the prairie itself somewhat too narrow. Being informed that the drift hills skirted Catahoula Lake closely upon the northwest, I chose the road on the southwest upon my trip. The alluvium of Black river extends to the lake upon this side to within eight miles of Bayou Saline. Here the soil resembles that of Bœuf river swamp, being of yellow loam, although subject to overflow. At the Saline it rises to an oak covered plateau, that stretches around the head of the lake to the mouth of Flacoon creek, and westward to within ten miles of Pineville, and contains Hollowell's prairie. The oaks near Bayou Saline are mixed with short leafed pine, which gives place at the west of the prairie to the long leafed variety, that covers the drift hills throughout this region to the north and west. The strata of the Port Hudson groups underlie this prairie region, as they do the Bayou Macon hills, as shown by the following section of a well dug in ground as high as the prairie, within a mile of the head of Catahoula Lake :

CAPT. L. D. CORLEY'S WELL.

- | | |
|---|----------------------|
| 4. Yellow clay (somewhat pink in streaks), 11 feet, Yellow loam. | } Port Hudson group. |
| 3. Fine yellow sand, 7 feet. | |
| 2. Salt in crystals, $\frac{1}{8}$ inch. | |
| 1. Blue clay, with cypress bark, limestone nodules and fresh water shells of recent species, 38 feet. | |

The occurrence of salt in this position is interesting, the formation being much more recent than that which gives rise to the salt springs of Bienville and Winn parishes, which were described last year. It was noticed by the earliest settlers, as the name of Saline bayou testifies. Whether it is present in quantities that would render an attempt to utilize it profitable is a question that can not yet be settled. Various points in the Port Hudson area give salt water, but always weak and impure, so that we can hardly expect much from this locality.

The yellow loam and bluff are here broader than is shown upon the map, but sweep down to Red river very much as represented. They form together Avoyelles prairie, as well as the others marked "bluff," the specimens brought from that direction on the first trip, taken two years since, showing the prevalence of the well-known white clay with iron concretions upon the surface of these prairies, while the Calcasieu sulphur borings give us the best section of undoubted Port Hudson strata yet found in the State.

So far we have only noted the prevalence of the yellow loam over Port Hudson strata, excepting in the case of the drift uplands between the Ouachita and Bayou Bartholomew and the hills about Trenton. Last year I mentioned the eastern edge of the drift area, from Columbia to Harrisonburg, as displaying the yellow and red clays in force, and there is great reason to infer that they prevail widely over large portions of the pine woods region that have not yet been examined. This is an important circumstance. The very name of pine woods conveys an idea of poverty of soil to the inhabitant of the low lands. But we have seen that short-leaved pines may prevail where as much as six or seven feet of loam cover a stratum of sand. This depth of arable land is amply sufficient for a plant like cotton, which sends its roots to so slight a distance, so that as good farms can be made in many parts of the State that are now covered with pines as have long formed the wealth of the bluff parishes. But even the latter are very much undervalued by many. I was informed at more than one place on the edge of the Bayou Macon Hills that since the breaks in the levees have rendered the swamp lands useless the planters have been driven to the hills that had been previously neglected, and have made their bale to the acre more easily than before. In order to attract our share of emigration

we should let it be widely known that our agricultural resources are not confined to the bottom lands, whose reputation for unhealthiness is not inviting, but that even our pine woods regions are often covered with a soil that will amply repay the labors of the settler, while their salubrity is almost proverbial.

As an example of what may be expected from the yellow loam in adding to the wealth of the State, allow me to refer to what has already taken place near the site of the old Seminary building, in Rapides. At the time of our unfortunate fire, the pine woods in that region were almost uninhabited. Since that time, however, a large number of families have moved in, and opened small places upon the various creeks. They cultivate not only the creek bottoms, which are fertile but narrow, but also the yellow and red clay hills. The fact that Pineville has nearly doubled in population and importance, and has last year rivaled Alexandria in the exportation of cotton, is the best commentary on what our uplands can do. The yellow clay of this region appeared to me to be continuous with that of Hollowell's prairie, and so to belong to the formation that we are considering, but my observations on this point are not yet quite conclusive. The drift is the conspicuous feature of this region, and its sands often interrupt the more fertile clays.

Upon the eastern side of the Mississippi river, the yellow loam claims consideration in large portions of the parishes of East and West Feliciana, the southern part of St. Helena, East Baton Rouge, and portions of Livingston. It overlies the point above Bayou Sara, where the Loess terminates and Port Hudson strata form the bulk of the bluffs. It is often brown and very loamy near the river, as in the area of the Loess. Extending eastward over the drift, as near as Laurel Hill, it is often of a clear pale yellow, with white clayey spots that simulate the calcareous lumps of the Loess very closely. It is bounded in this direction by the Amite river for at least twenty miles from the line. Its outlines have not yet been well made out, because it is often removed by denudation, its thickness being but small. It is very probable that it will be found to have once extended beyond the limits of the State (when it is more fully studied), as it does in Mississippi.

The magnolia and cane are found chiefly upon the brown variety, oaks upon the yellow, and short-leaved pine where the loam is but

thin and drift, or the sandy stratum of the Port Hudson groupe, approaches the surface. The white modification with iron concretions is rarer than upon the western side of the river, but sometimes produces prairie spots, such as Buller's Plains, in East Baton Rouge, and the open savannahs that dot the short-leaved pine woods of Livingston.

THE LOESS.

This is perhaps the most striking portion of the bluff formation, being that which extends farthest towards the head waters of the river, and which alone received the name of "bluff" in Missouri. Its area in Louisiana, however, is inconsiderable. There are a few acres of it upon the tops of the hills in Sicily Island, near the Ouachita, as has already been noticed, and it occupies a triangular space in West Feliciana, bounded by the Mississippi bottom on the southwest, Bayou Sara creek upon the east and the Mississippi line upon the north, about sixty square miles all told. This is but the southern end of a strip of this same soil, from ten to eighteen miles wide, that extends past Vicksburg, up the east side of the Yazoo, through Tennessee and Kentucky (where it is continuous with the terraces of the Ohio river and its tributaries) into Illinois. Its boundaries here are not clearly laid down, but I gather from Professor A. H. Worthen's Report on Illinois, 1870, that it extends up the valleys of the Wabash and Illinois rivers, and up the Mississippi as far as the northwestern corner of that State. It is well developed upon the Missouri, almost as high as Fort Pierre, in Dakota,* the deposit upon that river reaching thirty miles west of its present channel in Washington county, Nebraska, and maintaining that distance as far as the Kansas river. Upon the east its sweep includes the southwest portion of Iowa,† and extends through Missouri until it joins the deposits upon the Mississippi. I have learned nothing of its distribution in Arkansas, as the survey of that State has never been completed, but judging from the omission of all mention of it in the first and second reports, and from the very small area yet found in our own Ouachita region, I should hardly expect to find it very strikingly developed there. There must, however, be patches

* First and second Rep. Geol., Mo., p. 73.

† Geol. Iowa, C. A. White, 1870, pp. 109 and 110.

left here and there, as records of the former continuity of this vast deposit.

The depth of the Loess is occasionally as much as 200 feet in Iowa and Missouri, but resting as it does upon the uneven surface of older formations it is often much thinner. Thus in our own State the Tunica hills present 150 feet of Loess overlaying blue clays of the Port Hudson group, at a point fronting on the river, about two and one-half miles north of Tunica landing. Seven miles below, at Captain S. Brandon's, there is an exposure of seventy-five feet of silt. The yellow loam was not looked for at these places, but may exist at the tops of the hills. No good section was seen between this point and the bluff near Garnhardt's lake, six miles north of St. Francesville. Here a hill of red drift sands and clays rises to a height of seventy feet, and is covered by an irregular transition stratum of drift sand with a few helices near the top, then by eleven feet of Loess and ten feet of yellow loam. The Loess reaches only a mile beyond this hill, although the bluffs continue with much the same aspect but gradually diminishing height as far as bayou Manchac, being composed of the yellow loam overlying Port Hudson strata in his part of their course.

The characteristics of the Loess are so marked that they have attracted much attention, and have been ably described already by Lyell, Wailes, Swallow, Hilgard, White, of Iowa, and many others. It comprises a single stratum of yellowish silt, consisting chiefly of silica and carbonate of lime, with enough admixture of other substances to make it an excellent soil. Its particles are very fine and slightly cemented together, although they are so rounded that the whole mass is very porous. It results from these circumstances that slight rains do not effect it where it has not been disturbed; while, where enough drainage is concentrated to commence its removal, it washes deeply and rapidly, making gullies with almost perpendicular walls.

Artificial excavations in it are dry and permanent, as the inhabitants of Vicksburg proved during the siege. The roads, in regions where the Loess is deep, often seem to run at the bottom of a trench, the banks on either hand rising vertically to a height sometimes of twenty or thirty feet. The Tunica hills and the neighborhood of Fort Adams in Mississippi afford good examples of this. It is often

perforated with holes, probably made by roots that have decayed. Sometimes these are cased, as it were, by a tube of silt cemented with lime derived from the hard water that trickles through them. Sometimes they have been filled completely, giving rise to calcareous concretions of fantastic form. The proportion of lime in this formation is sometimes sufficient to make it a marl, whence it was called "siliceous marl" by Owen. It is everywhere full of shells of land testacea of the genera *Helix*, *Helicina*, *Pupa*, *Cyclostoma*, *Achatina*, and *Succinea*, of which Lyell collected twenty species near Natchez.*

At a ford on Dunbar's creek, about ten miles east of the river upon the State line, I found the bed of an old swamp or pond, that seems to pass gradually into the Loess. This bed contains sticks and leaves of trees, besides twelve species of shells of the genera *Lymnaea*, *Paludina*, *Planorbis*, *Pupa*, *Helix* and *Cyclos*, all recent. Lyell noticed similar deposits in Mississippi. The one that I found occupies a valley in the drift, a hill of which stands upon the northwest, covered with loess, sides and all. This proves a point that has been denied, viz.: that the drift deposits stood uncovered, at a sufficient elevation, and for a long enough time to have valleys cut in the deposition of the Loess. This is also well shown at the section at Garnhardt's lake, already alluded to, and will have to be brought up again when we come to the subject of the drift. This swamp deposit *may* be of Port Hudson age, the Loess really overlying it instead of passing into it, the alluvium of the creek rendering it impossible to settle this point with certainty.

Besides the above mentioned fossils, the remains of the mastodon are common in the Loess. I found a caudal vertebræ referable to that animal at the ford last mentioned. The Port Hudson strata seem to have yielded all the other mammals usually mentioned as found in the bluff.

The soils of the area that we are considering are generally due to the overlying yellow loam, and are strong and mellow. Where this has been removed the silt is found to be fertile, and well adapted to the growth of cotton. Fruit flourishes remarkably well in this calcareous soil. Grapes, peaches, quinces, pears and even apples grow here to perfection. The forests are composed principally of magnolia, poplar and sweet gum, with an undergrowth of cane. The

* (Second Journey to the United States, Vol. 2, p. 149.)

latter makes the cattle ranges good, and I am informed that an increased amount of attention is now paid to stock raising. There is no more delightful or healthful region in Louisiana than this. The scenery surpasses that of any part of the State, and its breezy uplands are lifted high above the influence of malaria. Before the war it was one of our wealthiest regions, and now holds out superior inducements to that immigration so much needed in every portion of the sunny South.

A few words are here necessary concerning the origin of the Loess. Those geologists who have described the portions of it seen in the upper country have agreed pretty generally that it is a lake formation. Lyell calls it the remnant of an old flood-plain of the Mississippi river, formed when the land was depressed, and now elevated above its former level. The question can only be settled by the phenomena presented here, because here, if anywhere, the broad river met the gulf, or the lake barrier must have existed. The section near Garnhardt's lake does show the existence of a barrier in the form of drift hills, reaching nearly to the top of the formation as it exists now. But that barrier was not high enough to separate the waters above from those below it, for it is overlaid by the Loess. Moreover the transition stratum intervening between the drift and Loess betrays the existence of some current at this point, that has disturbed and rearranged the drift to a depth of from three to fifteen feet, washing the sand free from pebbles, and mixing a little silt and some helices therewith. South of Bayou Sara creek the drift is very near the surface as far as Thompson's creek, but is generally overlaid by the yellow loam alone, or by the Port Hudson strata also, as at St. Francisville. None of these drift hills are as high as that near Garnhardt's lake, nor are they covered by anything that can be fairly regarded as equivalent to the Loess. At Port Hudson, below Thompson's creek, the bluff is crowned by twenty-five feet of a yellow clayey hardpan, itself covered with yellow loam that may be such an equivalent, although in the absence of fossils, or of visible stratigraphic continuity, or of chemical similarity, it is not easy to prove it.

Still it is the most probable reference. I incline, therefore, to Sir Charles Lyell's view, and suppose that the lake-like expansion of freshwater so widely spread over the interior was really an estuary,

connected with the Gulf by a wide mouth, much obstructed upon the eastern side at least, by a broad range of drift hills, over whose top a gentle current carried the more clayey portions of the sediment to form the hard pans of Port Hudson, while the snail-shells and fine sand lodged against the first few eminences. The rain fall of the period could not have been less than now, as the depression of the land must have favored even a greater amount of moisture in the atmosphere. The estuary must, therefore, have carried as much water then as the Mississippi of to-day, which it might easily do with a hardly persceptible current, on account of its great breadth. The west side was probably the place where the flow was greatest, at least at the end of the period, for we find that the Loess was deposited there, and afterwards removed together with the upper Port Hudson strata to a depth of one hundred feet, before the deposition of the yellow loam.

This seems especially hard to account for upon the lake theory. If a complete barrier had anywhere existed, it must have been to the south of Sicily island, and have consisted of Port Hudson strata, whose lower members are still to be found beneath Catahoula and Hollowell's prairie, and extend across the State lower down. It must have remained, if it existed at all, until the lake was filled with silt higher than any Port Hudson layer now to be seen. How its complete removal could have been accomplished I leave it to the advocates of this view to explain. An estuary such as I imagine to have existed would gradually silt itself up, the current changing its place continually as the Mississippi does now, so that there is nothing strange in its first having deposited Loess of the usual depth upon its western side, and having then removed it as the stream, more rapid on account of its narrowed channel, chanced to wash on that side while continuing to make upon the east. The peculiar character of the deposit must have resulted from the new condition of the surface presented to the denuding action of rains after the drift agencies had plowed ground and washed the continent far and wide. The immense number of snails seems to imply that the area of swampy lands was vastly greater than now, as must have been the case when the continent was so depressed. We will be better able to understand the special conditions prevailing in this period, however, after we have examined the strata that were formed in the preceding epoch.

THE PORT HUDSON GROUP.

The area of the Port Hudson Group in Louisiana is co-extensive with that marked "Bluff" upon the map, viz: The Bayou Magon Hills, with strips along Bayou Bartholomew and the Ouachitaw, Catahoula, Hollowell's and Avoyelles prairies, with occasional terraces upon Red river, and the prairie and short-leaved pine region of St. Landry, Calcasieu and Lafayette, upon the west of the Mississippi river. Upon the east it underlies the Loess at Tunica Hills, and forms the bluffs upon the river below Bayou Sara creek, extending south-east and east through the Felicianas, East Baton Rouge, Livingston, Tangipahoa and St. Tammany. It overlies the drift where the two are in contact, and is covered itself by Loess, where that is present, and by the yellow loam. The delta formed by the Mississippi, from the end of the drift period to the era of the Loess, was composed of its strata, which are found also along the upper part of the river, at least as far as the Ohio, just as the modern alluvium forms both the newer delta, and extends besides to the head waters of the river.

The beds that compose it will be best understood from the following sections:

AT TUNICA HILLS.

4. Yellow loam.....	Not measured.
3. Loess.....	150 feet.
2. White clay, with calcareous concretions.....	} Port Hudson strata.
1. Whitish-blue clay.....	

AT ST. FRANCISVILLE.

5. Yellow loam.....	10 feet.
4. Yellow sand (like the transition between Loess and drift)....	9 feet.
3. Whitish sandy clay and sand in several alternations....	} Port Hudson group.
4. Sandy silt, with roots of an ancient forest.....	
6. Whitish-blue clay (sandy).....	

SECTION AT THE PORT HUDSON ELEVATOR (ALTON).

8. Yellow loam.....	5 feet	} 1
7. White and yello whardpan (equivalent of Loess?).....	20 feet	
6. Three layers of bluish joint clay.....	21 feet	} 2
5. Sand, indurated above and below, loose and white in the middle... 24 feet	24 feet	
4. Ledge of layers of clay, solidified by iron rust.....	3 feet	} 3
3. Massive clay, blue and very smooth.....	13 feet	
2. Stump stratum and leaf bed in blue shale.....	4 feet	
1. White clay.....	3 feet	
In all.....		93 feet.

Two hundred yards above this point stratum No. 6 becomes almost black with vegetable matter, and contains sticks and twigs. One

mile below, stratum No. 4 contains calcareous nodules, identical with those at Tunica. In fact, these nodules are one of the most persistent features of the formation and aid greatly in tracing it out. A few yards below Port Hickey No. 5 contains two layers of lignitized trunks that appear to be drift wood. Nos. 5 and 6 are very irregular, not retaining the same features anywhere for many yards in succession. Bones are occasionally washed out of this bluff, but I have only seen one specimen, a tibia, shaped like that of the megalonyx figured by Leidy in the Smithsonian Contributions to Knowledge, vol. 7, pl. 12, but only one-third the size. A three-fold division is traceable in the bluffs from Port Hudson to Baton Rouge, viz.; the yellow loam and hardpan, which are very persistent; the strata five and six, which are very variable, but return constantly through similar alternations of sand and clay, and the blue and white clays, generally containing nodules, sometimes calcareous and sometimes ferruginous. The stump stratum has not been observed below this place on the east side of the river, although it occurs in Catahoula and St. Mary, upon the west. The layers called driftwood have little appearance of growth in sight, the presence of a few twigs and stumps being the most important hint in that direction. These are scattered, however, and as it is preferable to err on the safe side, I report them as driftwood.

AT C. W. ALLWORTH'S, FIVE MILES NORTH OF BATON ROUGE.

- | | |
|---|----------|
| 3. White hardpan, yellow above..... | 17 feet. |
| 2. Indurated clayey sand, laminated..... | 11 feet. |
| 1. White and yellow spotted clay, concretions of lime and clay..... | 24 feet. |

AT GARRISON, BATON ROUGE.

- | | |
|---|-----------|
| 3. Brownish yellow loam..... | 23½ feet. |
| 2. Yellow and white hardpan, ferruginous concretions..... | 15 feet. |
| 1. Yellow clay with limy concretions..... | 16½ feet. |

Upon the east of the Amite the limestone nodules are struck continually in wells, at least as far as Springfield. In several places they are found at the surface, as at three miles east of Baton Rouge, and at Mr. E. Cooper's place, on the east of the Amite. As we approach Lake Maurepas these nodules alternate with sea shells. The country from Baton Rouge to the Jackson Railroad, at Ponchitoula, slopes gradually back from the river, as would be expected *a priori* of an ancient alluvial formation, from sixty-two and a half feet above

low water at Baton Rouge to thirty-four feet at the edge of Amite river valley, and twenty-one feet at Ponchatoula, by the levels run for the Baton Rouge and Ponchatoula Railroad. In Tangipahoa and St. Tammany the influence of the river is less felt, and the deposits are often of the seabeach character.

On the west of the river the denudation has been so great in the region between the Arkansas line and Red river as to leave but little of the Port Hudson group above swamp level. The sections on page thirteen show that the stratum on which the Bayou Macon hills rest is mainly the variable sandy one, marked three in the St. Francisville, five in the Port Hudson and two in the Alsworth section. That on page fifteen shows that the region about Catahoula lake rests upon the main stratum of blue clay, number two at Port Hudson. Here we have again remnants of the fossil forest, as well as swamp shells like those from the deposit beneath the Loess. On Dunbar's creek equivalents of this clay form the terraces upon Red river, mainly within the limits of Louisiana, if the calcareous nodules are a sure guide, but a Loess-like deposit was long ago observed upon its banks higher up, by Dr. Shumard. These beds partake of the ferruginous aspect of this whole region, and are so intensely red that it was not until they were traced laterally into the Mississippi deposits that they were recognized as belonging to this group. Examples are seen on the road from Avoyelles to Pineville, at the falls above Alexandria, on the west bank of Cave river in Natchitoches parish, and at Grappe's bluff, above Camptè.

The great prairie region of the southwest is not yet known in any great detail, but the facts as far as gathered show its analogy to the opposite side of the ancient delta. Like the Bayou Macon hills, the part about Chicot is of yellow loam resting on the variable Port Hudson layer. The wells at this place pass first through a reddish yellow clay, and then through the various alternations of bluish white clays and sands, striking water at all depths from ten to seventy feet. No sections have been obtained between this point and the famous sulphur wells of Calcasieu. Here, at Dr. Kirkman's well, beneath a swamp deposit of fourteen feet, the yellow loam and hardpan are perhaps represented by the thirty-eight feet of red and yellow clays, the irregular stratum by one hundred and eighty-two feet of alternate sand and clay, and the massive blue clay

stratum is no less than one hundred feet thick, yielding lignite in small quantities as elsewhere, and overlying the drift. This gives two hundred and eighty-two feet for the thickness of the Port Hudson deposit here, while not a mile off the well of the Louisiana Petroleum Company passed through it within one hundred and sixty feet of the surface, and the second well of the Calcasieu Sulphur and Mining Company found it one hundred and sixty-three feet in depth.

The fossils gathered from this formation consist of the fresh-water shells found in the pond deposit on Dunbar's creek, mentioned on page —, and of the similar ones reported as struck in wells near Catahoula Lake. Sea shells are occasionally found in the southern part, on either side of the delta, as Pontchatoula, and about three miles north of Lake Charles in Calcasieu. Nearer the centre, the influence of fresh water extended farther south, so that the sea face of Cote Blanche, in St. Mary's parish, contains specimens of *Paludina*, *Melania*, *Unio* and *Cyclos*, as seen by Professor Hilgard in 1869. Mastadon bones are common. All through Dunbar's creek, a bar in the Mississippi below Rodney, and the base of the bluff at Alsworth's, six miles above Baton Rouge, are the only additional localities that I have heard of since my last report. The *tibia* before mentioned as having washed out at Port Hudson, has not yet been identified. Reports reach me of more discoveries at the same place. A large vertebrae of some whale-like mammal, and a very singular skull, combining the prolonged snout of a Gavial with the protuberant forehead of a bird, were contributed to the cabinet by J. D. Crawford, Esq., who reports them as having been dredged from the bottom of Bayou Lafourche, below Thibodaux. They are therefore supposed to belong to this formation, and have been forwarded to the Philadelphia Academy of Natural Science for identification. The Crescent City Museum, purchased lately for the University by Colonel D. F. Boyd, was found to contain two more vertebrae evidently from the same large mammal. It is hoped that the possessors of other fragments of this interesting fossil, or of any other remains of the ancient inhabitants of the area of our State, will either present them to the cabinet of the survey, or at least let me know of their existence, and allow me to examine their collections, so that the final report may be as complete as circumstances will admit of.

As the definition of the Port Hudson group makes it include all the strata between the drift and the Loess, I am inclined to claim for it all the beds of blue clay so often mentioned as underlying the Loess, and yielding mammalian remains. Such are the lower beds at the famous Mammoth Ravine, in Adams county, Mississippi, mentioned by Lyell, and in the reports of that State; and also that six miles below Henderson, Kentucky, whence Owen obtained the *Mejalonyx Jeffersonii* in 1854. The number of species found in such beds amounts to more than a dozen, but it is not worth while to give the list of their names until their reference to this geological horizon shall have been better established.

The soils that are due to this group are not very widely distributed, as its surface is generally covered by yellow loam. There are localities, however, where this layer has been removed by denudation, revealing either the hardpan equivalent of the Loess or genuine Port Hudson strata. The hardpan affords a fine-grained clayey soil, easily worked, and retaining fertilizers well. The strata below furnish either clays or sands of somewhat too pure a character to give the best conditions for fertility. The lower layer with calcareous nodules furnishes a fine strong soil. The growth gives a tolerable indication as to which layer is present. Oaks prefer the hardpan, magnolia and poplar like lime, and are found where the nodules appear, while the sandy layers of the variable division are betrayed by the presence of short-leaved pine.

Whatever additional details may be made out here after the following points in the history of the bluff formation, may be regarded as established. 1. During a long period after the deposition of the drift the land stood at about its present level, allowing the valleys to be cut in the drift that we now find covered by bluff deposits, and the earth they once contained to be re-stratified as the foundation for the delta. This foundation reaches above the surface of the water in Catahoula and at Port Hudson, as far south as the Five Islands, and was covered with a forest of cypress and other trees. After a time sufficient for the accumulation of four feet of shaly leaf-bed about the roots of these trees, a depression began and continued until the water level stood at least sixty-eight feet above its present height, at Port Hudson. This would carry the area of dead water 272 miles up the river valley, allowing three inches to

the mile as the present slope of the water in the river. So small a depression left the Mississippi very much such a stream as it now is, to deposit sands and clays throughout the Port Hudson period, as at present. There occurred a further movement which left the headwaters of the river very much lower than now, while apparently not sinking Louisiana more than twenty-five feet further. The upper waters of the river then expanded into a lake-like estuary, almost without current as far as Fort Pierre, in Dakota, and the north-west corner of Illinois. The plains of the Mississippi valley far and near became the swampy homes of innumerable snails, and the Loess was deposited. Finally a further depression of twenty-five feet in our latitude at least, and as far as northern Mississippi, spread the area of dead-water over all these swamps, and so diminished the already small current that only clayey silt could be carried by the flood. This forms our yellow loam; a reverse motion then began, which restored the height of the Continent above the ocean. The rivers contracted to narrow channels, and began the work of cutting out their beds, and forming anew their flood plains and deltas—a work by no means completed. The remnants of the old flood plains remain, a fringe of bluffs on either side, as monuments of this “eventful history.”

THE DRIFT.

Not much has been done this year in the way of adding to previous observations of our drift deposits, but the specimens of traveled pebbles already collected from various localities in the State have been submitted to a pretty close examination with a view to the specific determination of the fossils they contain. These pebbles are mainly of reddish and yellowish cherts, varied by quartz, jasper and agates. The fossils are all palæozoic, and principally in the condition of casts. Their specific determination is therefore impossible in many instances, but quite easy in others. The specimens labeled according to the following catalogue have been carefully compared with the excellent engravings in the New York, Iowa and Illinois reports, and with our ample collections of Western fossils. Mistakes can hardly have been avoided entirely, but it is thought that the list is reasonably accurate.

It will be remembered by those who have read our former com-

munications that the drift deposit seems once to have covered our whole State to a depth of nearly 200 feet. It has been removed by denudation along the Mississippi and Red rivers, and lies buried beneath the delta accumulations of the bluff period, probably extending far out under the gulf. It remains upon the surface (excepting for the yellow loam) over the area of the tertiary deposits, as shown on the map, extending widely east, west and north beyond the limits of our State. It was formed evidently by running water, the direction of the current being from the northeast and north.

The main constituents are coarse-rolled sand, with fossiliferous pebbles, and red and yellow sandy clays, occurring in various alternations and with very irregular stratification. It is mainly with a view to the determination of the original site of the materials of these beds, and the direction in which they have been carried, that the study of these fossils has been undertaken. They were mostly collected by Colonel D. F. Boyd, at the site of the Old Seminary building, near Alexandria, and were presented by him to the cabinet of the survey. Appended to each name is that of the group from which it was washed, and of localities that happen to be mentioned in the reports that I have at hand. This part of the list is very imperfect, but will be improved hereafter.

CATALOGUE OF TRAVELED FOSSILS FOUND IN THE SOUTHERN DRIFT AT L. S. S., IN RAPIDES PARISH, WHERE NOT OTHERWISE NOTED.

CARBONIFEROUS?

Myalina recurvirostris? Meek and Worthen, upper cast, La Salle, Illinois.

Cast of *Sternbergia*.

Fenestellae, two species undetermined.

Bellerophon and *nautilus*, species undetermined. The *myalinae* being doubtful, there is no positive evidence that the carboniferous strata contributed at all to our drift.

SUB-CARBONIFEROUS.

Mollusks—(*Brochiopæla*).

Orthis, undetermined; like specimen from Kentucky.

Productus punctatus, Martin, Archimedes limestone, Missouri; siliceous group, Tennessee.

Productus, undetermined; like specimen from Barrens, Kentucky.

Productus flemingi, Sow., var. *Burlingtonensis*, Hall, Burlington, Iowa.

Spirifer logani, Hall, Keokuk group, Nauvoo, Illinois; siliceous group, Tennessee.

Spirifer tennicostatus, Hall, Keokuk group, Iowa and Illinois, and siliceous group of Tennessee.

Terebratula trinuclea, Hall, Bloomington, etc., Indiana, and Sewanee, Tennessee.

Bryozoa.

Fenestella (Archimedes) Wortheni, Hall, Warsaw group, Illinois.

Polypora halliana, Prout, (drift of Clinton, Mississippi), St. Louis group, Illinois.

Corals.

Litteostration Canadeuse, Castelnau, St. Louis limestone, Iowa, Missouri, Illinois, Kentucky, Tennessee and Alabama.

Litteostration proliferum, Hall, St. Louis limestone, Illinois, Kentucky and Tennessee.

Zaphrentis spinulifera, Hall, Warsaw limestone, Illinois, Kentucky and Tennessee.

Crinoids.

Archaeocidaris Wortheni, Hall, St. Louis limestone, St. Louis, Missouri.

Granatocrinus projectus, Meek and Worthen, Burlington limestone, Iowa.

Pentremites symmetricus, Hall, Kaskaskia limestone, Kentucky.

Synbattrocrinus Swallowi, Hall, St. Louis limestone, St. Louis, Missouri.

Zeacrinus elegans, Hall, Burlington limestone, Iowa and Tennessee.

Zeacrinus maniformis, Hall, Kaskaskia limestone, Chester, Indiana.

Philipria merameccensis, Trilobite, Shumard, Archimedes limestone, St. Louis county, Missouri.

DEVONIAN.

Mollusks (Bracheopoda).

Atrypa reticularis, Dalman, Corniferous limestone, in Missouri, Ohio, Kentucky, Illinois, Indiana and Canada West, Hamilton group, in New York and Canada West, Chemung in New York, and Niagara group of U. Silurian, in Tennessee.

Atrypa aspera, Schlotheim, Hamilton group, Illinois, Kentucky, Iowa, etc., etc. *Murchisonia* sp., Hamilton group, Falls, Ohio.

Orthis suborbicularis, Hall, Hamilton group, Illinois.

Orthis, undetermined, like specimen from Falls of the Ohio. U. Held.

Orthis, idoneus, Hall, Hamilton group, Erie county, New York.

Rhynchonella (*Stenocasma*) *contracta*, Hall, Chemung, Licking county, Ohio.

Rhynchonella (*Stenocasma*), *Sappho*, Hall, Hamilton group. Erie county, New York.

Spirifer bi-plicata, Hall, Chemung group, Iowa and Illinois.

Spirifer disjuncta, *Sowerby*, (Drift at Clinton, Mississippi,) Chemung, New York, and Pennsylvania.

Spirifer duodenaria, *Hall*, Corniferous group, Ohio and New York.

Spirifer fornicula, *Hall*, Hamilton group, Jackson county, Illinois.

Spirifer Grieri, *Hall*, U. Helderberg, Dayton and Sandusky, Ohio.

Spirifer hemicyclus, *Meek* and *Worthen*, Oriskany group, Union county, Illinois.

Spirifer macra, *Hall*, Corniferous group, Ohio and New York.

Spirifer mucrovata, *Billings*, (Avoyelles parish,) Hamilton group, Missouri, Ohio, Indiana, Canada West.

Spirifer sculptilis, *Hall*, (Drift at Clinton, Mississippi,) Hamilton group, New York.

Spirifer sub-rötundatus, *Hall*, Chemung, Burlington, Iowa.

Strophodonta perplana, *Conrad*, Corniferous group, Kentucky and Indiana.

Terebratula Sullivanti, *Hall*, U. Helderberg, Ohio and New York.

GASTEROPODA.

Platyceras, undetermined, (drift of Clinton, Mississippi,) U. Helderberg, Falls of Ohio.

Platyceras magnificum, *Hall*, (in angular block of two and a half kilogrammes, weight, L. S. S.) Oriskany group, New York.

BRYOZOAN.

Polypora Hamiltonensis, *Prout*, Hamilton group, Iowa and Illinois.

CORALS.

Acernilaria profunda, *Hall*, Hamilton group, Iowa and New York.

Cyathophyllum rufosum, *Hall*, U. Helderberg group, Kentucky and Missouri.

Favorites spicata (East Feliciana), U. Helderberg, Falls of Ohio.

Zaphrentis gigantea, Falls of Ohio, U. Helderberg.

Zaphrentis, species undetermined, like specimen from Falls of the Ohio.

CRINOIDS.

Nucleocrinus verneuilli, Falls of the Ohio, U. Helderberg.

Pentremites verneuilli, *Troost*, Ohio.

Synbattrocirinus, species Dev. or Sub-Carb.

Technocrinus spinulosus, *Hall*, Oriskany group, New York.

UPPER SILURIAN.

Mollusks—(Brachiopoda).

Atrypa equiradiata, *Hall*, Clinton group, Oneida county, New York.

Atrypa intermedia? *Hall*, Clinton group, Lockport, New York.

Atrypa nariformis, *Hall*, (Clinton, Mississippi) Clinton group, Rochester, New York.

Avicula rhomboides, *Hall*, Clinton group, Wayne county, New York.

- Cyclonema sulcata*, *Hall*, Salina group, Galt, Canada West, and New York.
Cypricardia alata? *Hall*, Medina group, New York.
Meriste laevis, *Hall*, Lower Helderberg group, New York.
Leptaena depressa, *Dalman*, L. Sil. to Dev., Europe, New York, Tennessee.
Orthis flabellulum, *Sowerby*, Niagara group, Lockport, New York.
Orthis hybrida, *Sowerby*, Niagara group, New York, Tennessee, etc.
Orthis tenuidens, *Hall*, Clinton group, Oneida county, New York.
Spirifer perlamellosus, *Hall*, (Clinton, Mississippi) Lower Helderberg, Illinois, New York, Tennessee.
Strophomena rhomboidalis, *Wahlenb.*, L. Sil. to Carb. ? Devonian in Illinois.
Trematospira costata, *Hall*, Lower Helderberg, New York.
Trematospira formosa, *Hall*, Lower Helderberg, New York.

Pteropod.

Tentaculites, species undetermined.

Cephalopoda.

Orthoceras, four species, undetermined.

Gasteropod.

Pleurotomaria solaroides? *Hall*, Salina group, Canada West.

Bryozoa.

- Fenestella cribrosa*? *Hall*, Niagara group, New York.
Fenestella prisca? *Lonsdale*, (Calcasieu, four hundred feet below surface) Clinton group, New York and Canada West.
Fenestella tenuiceps, *Hall*, Niagara group, Lockport, New York.
Lichenalia concentrica, *Hall*, Niagara group, Lockport, New York.
Polypora incepta? *Hall*, Niagara group, New York.

CORALS.

- Astrocerium venus and urre*? *Hall*, Niagara group, New York.
Caninia bi lateralis? *Hall*, Niagara group, New York.
Catenipora escharovides, *Lamarek*, Niagara group, Wisconsin, Iowa, Kentucky, Tennessee, etc.
Chaetetes cycoperdon, *Say*, from Trenton to Niagara groups, Canada West, New York, Kentucky, Missouri.
Clatropora alaicornis, *Hall*, Niagara group, Lockport, New York.
Diplophyllum caespitosum, *Hall*, Niagara group, Lockport, New York.
Favosites favosa, *Goldfuss*, Niagara group, New York, Wisconsin, Tennessee, Kentucky, etc.
Favosites hemispherica, Lower Helderberg, Falls of the Ohio.
Favosites maxima, (Petit Anse. Id), Lower Helderberg, Falls of the Ohio.
Favosites Niagarensis, *Hall*, (petit Anse.), Niagara group, New York, Kentucky, Tennessee, etc.

Favosites polymorpha, *Histager*, Lower Helderberg, Falls of the Ohio, Missouri.

Heliolites sprinipora, *Hall*, Niagara group, New York and Tennessee.

Petraia Fanningana, *Safford*, Niagara group, Tennessee.

Stromatopora concentrica, *Hall*, Niagara group, Lockport New York.

Syringopora (?) *multicaulis*, *Hall*, Niagara group, New York.

Trematopora formosa, *Hall*, Lower Helderberg, New York.

Trematopora granulifera (?), *Hall*, Niagara group, Lockport, New York.

CRINOIDS.

Platycrinus, species.

Oaryocrinus meconoides (?), Kentucky.

Cyattocrinites pyriformis, *Hall*, Niagara group, New York.

Actinocrinus, species.

PLANTS.

Cast of root of sea-weed.

Ichnophycus tridactylus, *Hall*, Clinton group, New York.

These lists, studied in connection with the geological map of the United States and Canada, show pretty clearly the origin of our drift. The silurian fossils preponderate, the devonian are well represented, the sub-carboniferous are few, and the carboniferous still fewer, while the cretaceous are wanting entirely. The tertiary area of which Louisiana forms a part extends like a deep bay to the mouth of the Ohio, and is bounded on the east and west by the broad cretaceous areas of Alabama and Texas. These areas taper out as they follow the curve of the bay towards the Ohio. That upon the east lies against a somewhat parallel shore of sub-carboniferous and carboniferous strata. That upon the west abuts upon the azoic of Arkansas, then upon a narrow face of sub-carboniferous, then upon a considerable silurian area in northeastern Arkansas and southeastern Missouri, and disappears before reaching a devonian and sub-carboniferous area that lies opposite the mouth of the Ohio. A line drawn from Alexandria about thirty degrees east, passes over a country combining the proper proportions of silurian, denovian and sub-carboniferous strata with the required absence of the cretaceous; and from this direction therefore we infer that the drift current flowed.

This line if carried further passes through the carboniferous area of Illinois. As we have so few fossils of that age, the transporting power of the water is limited by the distance between Alexandria

and that coal-field, which is about four hundred miles in a straight line. As the only devonian area in that direction lies opposite the mouth of the Ohio, the transporting power of the water was equal to the task of rolling pebbles for at least three hundred and sixty miles, unless indeed the strata that furnished our fossils were removed from the surface of the area where the silurian is now laid bare, which reaches to within two hundred and twenty miles of Alexandria.

The southern drift extends widely east and west of our State, but within our own limits its pebbles vary in character. The northwestern portion of the State exhibits rolled azoic fragments from Arkansas, while fossils are found in the pebbles on the east, at least as far as Pearl river. No other locality, however, has as yet been as fully investigated as that of the site of the old Seminary. A collection of a hundred or so species from any other one spot would greatly aid in checking or corroborating the above conclusions. A line drawn parallel to the former, from the mouth of Pearl river, would pass through Nashville and Cincinnati to Lake Erie, between Sandusky and Toledo. This passes over the "Highland Rim" of Tennessee, whose average elevation is from 900 to 1000 feet above the sea. (Safford, Geol., Tennessee, p. 82.) The rim is composed of sub-carboniferous strata, which have been denuded in the centre of their former area, so as to leave exposed a basin of silurian beds. A very similar state of things occurs in Ohio. Cincinnati is situated upon an island of silurian strata that has lost about 200 feet of its proper height by denudation. Between it and Lake Erie there extends an anticlinal axis, once covered by devonian and sub-carboniferous strata, that have been also removed. (See map accompanying Professor Newberry's Prelim. Rep., Geol., Ohio.) It is a very significant fact these denudations occurred in a line parallel on the one hand to the direction above demonstrated for a portion of the drift current, and on the other to the Apalachian mountains. The bed of cretaceous strata passed over upon this line is broad, and I would expect to find fossils of that period present in the drift near Pearl river, while the sub-carboniferous forms should outnumber both the silurian and devonian. It should be remembered, however, that the cretaceous fossils are rarely silicified like those of older beds, so that they might be worn away before traveling far.

Geologists do not yet agree as to the agency that produced the drift, some explaining the phenomena by imagining that the continent was once covered with a glacier as Greenland is to-day, while others conceive that a depression of the continent, sufficient to allow the present polar current to flow over the land, would be adequate to produce the results. Others combine the two theories, making a glacial precede an iceberg era.

Louisiana affords no evidence as to the supposed glacial epoch. Her few rocks show no striae, and her pebbles are rolled, not scratched. The drift beds are stratified more or less regularly, as if deposited in running water. There are rarely angular masses half as large as a man's head that show the occasional presence of ice. Blocks of even five hundred pounds weight have been found near Vicksburg, in Mississippi (Waile's Geol. Miss., 1854, p. 251), and there is no doubt that the passage of this formation into the modified drift of the North is easily demonstrable. The writer traced it himself this summer from Memphis to Louisville, and from Cincinnati to Lake Erie along the lines of railway that traverse those regions. There are at the North two additional phenomena to be explained, viz: The unstratified drift and the glaciated rocks. Whether these require a resort to the glacial hypothesis we may leave it to Northern geologists to settle. Our drift was transported by water and must date from the period of depression, or of the melting of the glacier.

I confess that I can hardly imagine it possible that the glacier, if it ever existed, could have been melted rapidly enough to furnish a current of fresh water of sufficient size to spread from fifty to one hundred and seventy-five feet of drift over nearly the whole country. If it had been, it would naturally have lingered last in the mountain ranges, and our fossils would be traceable rather to the Appalachians and the Ozarks than directly up the valley between them. We have no modern experience of sudden changes of climate to appeal to in support of this view. But there are plenty of cases of elevation and depression of land that can be proved to be even yet progressing, so that I prefer the polar current theory as the least violent of the two.

The amount of depression suggested by even the advocates of the latter theory varies greatly. Dr. Newberry, of Ohio, as I mentioned

last year, speaks of a "southern shore" to "the inland sea" that floated the icebergs to Ohio, as formed by the highlands of Ohio, Pennsylvania and western New York. I took occasion this summer, while on the trip already mentioned, to prove that this shore was *southeastern* rather than southern, so that it does not stand in the way of our supposed drift current. The depths to which the land sank is shown by the position of boulders perched often at great elevations above the level of the sea. As these were carried by ice, which floated them to their present places, the surface of the water must always have been higher than the sites of the boulders. We do not need more evidence than that afforded by Professor E. B. Andrews in the Ohio report for 1870 to show that the watershed of the continent was really submerged during the iceberg period. He has discovered boulders at an elevation of eleven hundred and fifty-nine feet above the sea, in Licking County, Ohio. (Geol. Surv. Ohio, 1869, p. 62.) Fort Wayne, in Indiana, is the highest point upon the Toledo, Wabash and Western Railroad, and is but seven hundred and eighty-nine feet above tide water, leaving three hundred and seventy feet for the minimum depth of the shallowest part of the interior sea.

I subjoin a table of the highest points upon a few of the railroads of the West, taken by myself, this summer, from the original profiles of the roads named. It will be observed that between Memphis and Lake Erie but one place was found on the line of these roads that is higher than the boulders of Licking county. This is Bellefontaine, Ohio. On the geological map of that State this place is seen to be an island in the middle of the denuded axis that stretches northeastward from Cincinnati. It was possibly an island in the drift current also, and at all events could not of itself form Dr. Newberry's "Southern Shore," as it is too far north of the Ohio. My thanks are due to the uniform kindness and politeness of the railroad officers, who placed their papers at my disposal with the utmost readiness in every instance.

List of the heights above tide water in the Gulf of Mexico, of the most elevated points on the following railroads :

Memphis and Louisville Railroad line, Memphis division.

Between Memphis and Paris—High water line at Memphis, 221 feet.

Trezevant.....466 feet.

Albany Station.....571 feet.

Paris.....458 feet.

Between Paris and Guthrie, hills not named, rise 571, 445 and 523 feet, respectively.

Between Guthrie and Louisville, Muldro's hill, 796 feet, South tunnel, 871 feet. Unnamed hill, 1031 feet.

Louisville and Nashville Railroad—The highest point on route, via Glasgow, is 971 feet.

Louisville and Knoxville, Tenn., n. Danville, Ky., 1028 feet; Hall's Gap, 948 feet.

Short Line, Louisville and Cincinnati, n. Walton, Ky., 916 feet; South Covington, 515 feet.

Louisville and Lexington Railroad, Buckner's Station, 810 feet; Lagrange 843 feet.

Eminence, Ky., 930 feet; Belleview, 875 feet; Christburg, 893 feet; Bagdad, 900 feet.

Highest hill near Cincinnati is 897.19 feet.

Lebanon route of Little Miami Railroad—Hills unnamed rise 812 and 857 feet.

Little Miami Railroad, from Cincinnati to Xenia, hills rise 711 feet, 747 feet and Xenia 914 feet.

Cincinnati to Springfield, Ohio, 830 feet, 991 feet, 1032 feet; Springfield, 1022 feet.

Lebanon to Springfield—Lebanon, 685; Bayville, 1029; unnamed hill, 1043.

Springfield to Sandusky, near Urbanna, 1080; Bellefontaine, 1260; Kenton, 1040 feet.

Toledo, Wabash and Western Railroad--Toledo, 569 feet. one mile east of Fort Wayne, 789 feet.

Langsport, 576 feet; Lafayette, Indiana, 583 feet; Danville, Ill., 590 feet.

Vermillion river, 520 feet.

We are here far within the Mississippi Valley, and must grant that when the water floated an ice raft either up to or over a hill 1159 feet above the present sea level there was a clear sweep for the polar current from the Straits of Belle Isle to the Gulf of Mexico, over Indiana and Western Ohio, even though there are heights that were not reached further to the east.

But it may be objected that a glacier overtopping the hill might have carried the boulders. The difficulty here is that they lie upon *modified* drift, stratified by water like ours, and the advocate of glaciers only is reduced to the necessity of assuming that the melting glacier could fill the continent with water to the above height in spite of its elevation above the sea, and the immense drainage afforded by the vallies of the Mississippi and St. Lawrence. The ruins of a glacier 6000 feet thick might easily be imagined to have dammed up lakes of great size in its interior as it rapidly melted,

thus preventing drainage for a time. But unfortunately the modified drift shows unmistakably the action of running and not of quiet water. I observed this for myself at many points, and the testimony of others is not lacking.

The author of "Frost and Fire," a careful investigator, gives the following section, taken at Fort Wayne. The italics are mine :

- "1. Gravel and rolled stones—no stratification visible.
2. Numerous beds of fine sand, horizontal.
3. Ditto, with occasional pebbles, horizontal.
4. A series of beds of sand and gravel, all dipping *towards the southwest*, in all twenty-four feet thick. *These indicate a stream flowing southwestward over this watershed of North America.*
5. A bed of clay, about three feet thick, with large, polished and striated boulders of rocks, which are found *in situ* to the north, beyond the great lakes.
6. A bed of fine white sand."

This gentleman is an able advocate of the iceberg theory, as explaining the drift both of Europe and America. Many of our own geologists take the same ground, and the following are some of the depths which they severally mention as probable measures of the amount of submersion in different places. Professor Hitchcock claims 2000 feet in Vermont. Geol., Vt., 1861, vol. 1, p. 91 ; F. V. Hayden, 12,000 feet in Wyoming, Geol. Surv. of Wyoming and the adjacent territories, 1870, p. 174 ; and Principal Dawson considers "several times five hundred" a safe estimate in Canada ; Acadian Geology, 1868, p. 68. If the West was as deeply submerged as Hayden supposes, the Northwest may have partaken in the movement, and another communication with polar waters may have been opened in that direction. This would explain the occasional movement toward the southeast, which is often indicated in the Northern States by striae, by transported rocks, and by beds with termination dipping toward the southeast ; but as the southwestern flow of the polar current is imposed upon it by the combined action of gravitation and the rotary motion of the earth upon its axis, it must always have been the more persistent of the two.

There is another consideration that to my mind militates strongly against the solely-glacial hypothesis. The advocates of that view claim that ice came as far south as the fortieth parallel of latitude in the centre of the continent (Agassiz, Atlantic Monthly, July, 1864, p. 86), and that it was suddenly melted to produce the rush of waters

that carried our drift. Now, it is well known that a remarkably warm summer in Greenland always results in setting free unusual multitudes of icebergs with their loads of earth and stone, which are carried by the polar current as far south as the thirty-seventh parallel. That is, the modern icefloes scatter their burdens for some twenty or thirty degrees south of their present glaciers. Now, boulders in the modified drift occur occasionally even in Louisiana, but cease for the most part at about the thirty-ninth parallel. How could a glacier have melted *in situ* from the fortieth degree to Greenland fast enough to raise the water level eleven hundred and fifty-nine feet above the present ocean without sending ice floats and boulders further than one degree? And this, while the stream that it gave forth could roll pebbles for four hundred miles and carry and deposit about two hundred feet of clay and sands in beds often thirty or more feet thick without a line of stratification! There is no violence of this sort in the theory of submersion, for if the polar current now carries bergs to latitude thirty-seven degrees, it might easily have carried them to latitude thirty-nine degrees during the period of depression. The climate of the world at large must have been nearly as warm as now to have melted these bergs so nearly at the same degree. It must of course have cooled the elevated portions of Canada and the Appalachians to have the arctic current constantly moving past them, and these no doubt may well have become ice covered and have added to the number of bergs from their local glaciers. But to regard the valleys of the Mississippi and the St. Lawrence as owing their modified drift to *solely* glacial causes appears to me to be inconsistent with the facts.

There is only one objection to the theory of depression, and that is the absence of marine fossils peculiar to the period in drift deposits over the interior of the continent. Its answer should be derived from observations of the power exerted by modern oceanic currents to convey life in the direction in which they are flowing. Professor C. F. Hartt, who has convinced himself of the truth of the glacial theory, even in Brazil, has made some interesting remarks that have some bearing upon this point, concerning the species found around the islands and coral reefs of the Abrolhos, as compared with those of the West Indies. He states that many of the shells common to

the Brazilian coast are identical with West Indian forms, while the polyp-fauna is almost entirely distinct. (Geol. and Phys. Geog. of Brazil, Hartt, 1870, p. 198.) The former fact is only what we should expect, as the equatorial current sweeps steadily northwest from Brazil to the West Indies. The latter, that a whole grand division of radiates should have escaped transplantation, is remarkable, and shows that it may not be as easy as it seems theoretically to plant an ocean fauna over thousands of square miles of a newly submerged continent. The usual explanation of non-fossiliferous strata, viz: that the water from which they were deposited were too fresh for marine life, seems to be eminently appropriate here. A sea that cannot be proved to have been deeper over the watershed than three hundred and sixty-three feet, flowing for hundreds of miles between the glacier regions of the Appalachians on the one side and the Laurentian hills on the other, could not fail to be perceptibly freshened by the constant influx of icebergs. Marine fossils are found in the modified drift of the St. Lawrence valley, and of Lake Champlain, a height, however, that does not of itself demonstrate that the watershed of the continent was covered. About one hundred species are mentioned by Dawson (Acad. Geol., p. 76,) as found in the post pliocene beds of the St. Lawrence valley, almost all being known as now living in the arctic regions. It need excite no surprise that they were not transported further into shallow, brackish and warmer seas, when they were only fitted for the deeper brine of the frigid zone. It will be borne in mind that the Appalachians are not proved to have been sunk, so that lateral transmigration of species along their proper isothermal lines was impossible.

Prof. C. H. Hitchcock has issued a valuable memoir entitled "The Distribution of Maritime Plants in North America; a Proof of Oceanic Submergence in the Champlain Period, 1871." It gives us pleasure to acknowledge the valuable aid that this branch of research has brought to the establishment of the theory that I advocate. I have been accustomed, however, to regard the Champlain period as one of more limited depression, equivalent, in fact, to our own bluff epoch, when the Continent had recovered enough of its present height to elevate its central portions above the waves.

I am not inclined at all to reject the idea that there was at one time a glacial period. The proofs that the Continent was once raised

higher than now, consisting as they do of lake-basins, ancient channels filled with drift, long gorges cut in the present sea bottom, leading from the mouths of rivers too feeble to have cut them, are too irrefragible. We must accept the fact of a continental elevation in high latitudes which Sir Charles Lyell has long ago demonstrated would produce a cold climate and glaciers. But the lake basins, fords, gorges, and channels, are all narrow, like modern glacier beds, and themselves oppose the idea of an universal ice-sheet. Furthermore, if it was an elevation that produced the cold, a depression is the most natural cause to which to refer the restoration of a temperature nearly like the present; and it is from this past glacial era that our drift deposits date.

Everything yet observed upon the subject in Canada and elsewhere, goes to show that both the depression and elevation were gradual. There were then two periods, one before and one after that of our drift, when the waters rose far over the land without overflowing the water-shed and producing currents. The first of these gave rise to the deposit of Sir Wm. Logan's Erie clays, around the great lakes and St. Lawrence valley. I have not observed any equivalent of these beds in Louisiana. Complete depression then produced our modified drift by the agency of the Polar current, aided by ice where boulders abound. Partial re-elevation to about the level of the Erie clay epoch, produced the Champlain terraces and our bluffs, and a further elevation brought about the deposition of alluvium at a lower level, and the establishment of the present order of things.

Such is the view of the past tertiary events that I offered last year, and this season's investigations have only convinced me yet more strongly of its truth.

THE MAP.

It only remains to offer a short description of this map, which unfortunately was executed too late for insertion in all the copies of my last year's report.

THE ALLUVIUM.

This includes the river bottoms and the sea marshes, together with the beds that render the gulf shallow for ten miles south of the

passes, which are undoubtedly composed of Mississippi sediments of cotemporary formation as far as the deep sea slope. The flood plains of the smaller streams, and the marine equivalents, are necessarily omitted upon the map. This year's observations have shown that the northern part of Bœuf river swamp, in Morehouse parish, the swamp at the mouth of Bayou d'Arbonne in Ouachita and part of Black river swamp should be represented as bluff.

THE BLUFF.

Including the yellow loam, Loess, and Port Hudson group, under this designation, the formation becomes hard to represent. The yellow loam extends further over the drift than the area shown on the map, which is that of the Port Hudson group only. Besides the corrections noted under the head of alluvium, the greater part of the area stretching northwest from Bastrop in Morehouse parish, and marked Drift and Jackson, should be included under this head. On the other hand the drift and Jackson beds fill the area between Bayou Bartholomew and the Ouachita more completely than is shown on the map. This bluff formation probably extends under the whole alluvial area, being itself but an ancient alluvium, now lifted up above its former level. Its deep sea slope may be looked for in a line parallel to the modern one, irrespective of the protrusion of the recent delta, and drawn from Belle Isle, through Lake Palourde and Bonnet Carre to about the mouth of Pearl River. Outside of this line the alluvial deposits are probably as deep as the gulf beyond.

DRIFT.

This formation is present over almost the whole State, overlying the tertiary, and underlying the bluff formations. It has been removed by denudation from the part of the bluff and alluvial areas lying north of Red river. As its greatest observed thickness is beneath the bluff formation in Calcasieu, it probably spreads widely under the bottom of the gulf. Much of the area that it occupies is overlaid by yellow loam, or cut up into creek bottoms, facts not shown upon the map, but of great agricultural importance.

TERTIARY FORMATIONS—GRAND GULF GROUP.

This formation consists of massive clays, clay rocks and landstones

with no organic remains excepting those of plants, whose occurrence has not yet been fully investigated. Its area as represented is generally hilly and the soil poor. It follows the trend of the gulf shore into Mississippi and Texas, and was elevated into hills and cut into valleys before the drift period. Not having very perceptible dip, it is not supposed to extend far under the preceding groups toward the gulf. The sandstones are generally of poor quality, although some could be used for building stone, hardening after exposure. Until the outlines of this group are fully made out in Texas it will be useless to speculate upon the absence of animal life in the waters that deposited it.

VICKSBURG GROUP.

This small but interesting series of beds occupies a narrow belt of country on the northwest border of the Grand Gulf group. Its strata dip towards the south, and hence underlie all that have hitherto been mentioned. They consist of smooth clays and clayey sands, full of marine fossils. Yellow and white limestone nodules with casts of sea shells are common in it. Lignite and estuary beds occur near its base in some localities. The best known localities where the fossils of this group occur, are marked on the map by the letter V; the estuary beds by an italic *L*, and the lignite by a Roman L. Iron ochre abounds in this formation, and often contains casts of shells like the limestone nodules. The soils of this portion of the State are very good, where not due to the drift.

JACKSON GROUP.

This is the most important of our tertiary formations, both as to area and fertility. Its fossils are numerous and interesting, but its useful materials are few. Clays, often marly, and sometimes full of gypsum; and finely laminated estuary deposits of clay and sand, with beds of lignite, are its principal features. An occasional bed of impure limestone occurs, but almost always too hard for convenient use. The large amount of lime in its soils renders it a much more prosperous and inviting region than the territory of the Grand Gulf group, although the drift often gives rise to poor lands here also.

CRETACEOUS FORMATION.

This underlies the whole State, and the south of Arkansas, out-

cropping widely in Texas and the lower third of Arkansas, and running northeastward toward the mouth of the Ohio. It reaches the surface at but two points in Louisiana as far as I know, viz.: the limestone hills of Winfield and near Chicot, in St. Landry. It comes very near the surface at all the various salt wells in Bienville and Winn parishes, and is the formation to which the sulphur of Calcasieu and the rock salt of Petit Anse both belong.

Older formations may underlie this in the area of Louisiana, but our deepest artesian borings have not penetrated to them as yet.

It has been usual heretofore to close the geological report with a few suggestions as to the operations of the ensuing year. There is very much yet to be done. The depth of the alluvium is not yet discovered; the fossils of the bluff have not been studied; those of the tertiary formations have not been more than half explored, nor have they yet been figured and described. Our few cretaceous localities need much more careful examination with a view to the possible discovery of more of such treasures as its sulphur, gypsum and salt. The stratification and fossil contents of the drift need much labor still for their full elucidation; while almost nothing has as yet been done in the chemical department of the survey. There is work enough here for several years, as the survey is at present organized; and I can hardly hope in the present state of public affairs to have it placed upon a more efficient footing. If the State continues to support it, no effort will be spared in the accumulation of material for a final report that will compare favorably with those of other States.

Yours, very respectfully,

F. V. HOPKINS, M. D.,

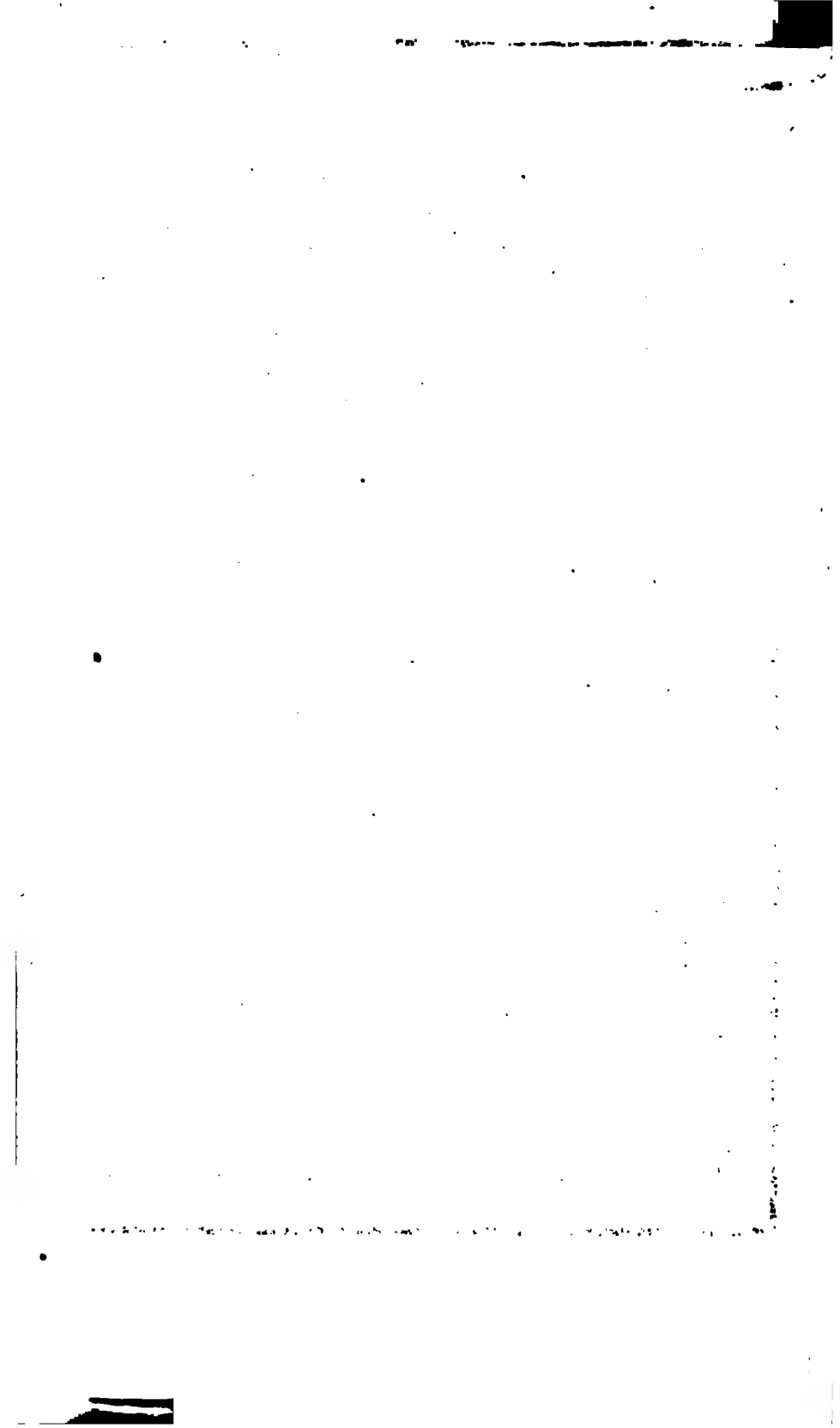
Surgeon and Professor of Geology, Chemistry and Mineralogy.

Respectfully forwarded to the honorable Board of Supervisors.

D. F. BOYD,

Superintendent.





[FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. II, DEC., 1871.]

ON THE

GEOLOGICAL HISTORY OF THE GULF OF MEXICO.

By E. W. HILGARD,
Of the University of Mississippi.

WITH A MAP.

[Read before the American Association for the Advancement of Science, at
Indianapolis, August, 1871.]

The colored outline map before you, without much pretension to accuracy of detail, shows the general geological features of the great embayment, once a portion of the Gulf of Mexico, whose axis is now marked by the course of the Mississippi river, from southern Illinois to its mouth. I have compiled this map from the best data now extant, accessible to me, with a view to the better elucidation of the succession and character of geological events; and especially with a hope of bringing to bear upon the later formations of the interior of the continent, the chronological record here left by the retreating waters of the sea. Marine deposits being better understood and more available for general comparison and conclusions than those of inland lakes, the series here shown would seem, by its original connection with the interior basins, to promise a key to the determination of equivalence in time, that, in view of the violent disturbances in the Rocky Mountain region, it might be difficult to find in that portion of the continent.

The subject matter of the present communication is, for the greater part, embraced in publications made by myself during the past ten years; and to these publications I must refer for the corroborative detail, which in this general summary would be out of place.

Cretaceous Period.

The most ancient shore-line of the Mississippi embayment is formed mainly by the various stages of the Carboniferous rocks. It is only in eastern Alabama and the adjoining portion of Georgia, that the Silurian and metamorphic rocks formed the shore of the Cretaceous seas. The deposits of the latter period have been traced by Safford up to the Kentucky line, along the western foot of the paleozoic ridge which compels the Tennessee river to make its long detour northward; and the Cretaceous outcrop doubtless extends, in a northwesterly direction, some distance into Kentucky.

In the portion of this belt embraced within the States of Mississippi and Alabama, the dip is sensibly to the trend (i. e., between W. and S.) at the rate of twenty to twenty-five feet per mile. In its southerly portion especially, the Cretaceous beds are very distinctly divided into three principal stages, viz.:

1. A lower one 300 to 400 feet thick—*Coffee group* of Safford (Eutaw group *Mihi*)—consisting of non-calcareous sands, and blue or reddish laminated clays, with occasional beds of lignite, and but very rarely (Finch's Ferry in Alabama) marine fossils, silicified; corresponds doubtless to Hayden's Dakota group, including, perhaps, in its upper part the equivalents of the Fort Benton group, to whose fossils those of Finch's Ferry, collected by Tuomey, bear a close analogy.

2. The middle or Rotton limestone group, not less than 1,200 feet in maximum thickness. Soft, mostly somewhat clayey, whitish, micro-crystalline limestones and calcareous clays; very uniform on the whole, if we except the locally important, but not generally extant, feature of the "Tombigby Sand," the special home of *Inocerami*, *Selachians*, and gigantic *Ammonites*.

3. Ripley group: crystalline, sandy limestones, alternating with dark colored glauconitic marls containing finely preserved fossils. Thickness 300 to 350 feet. Equivalent of the highest bed of the Cretaceous of New Jersey, and doubtless of Hayden's Fox Hills beds.

How far the Rotten limestone, as a whole, may be considered as embracing the whole of the series intervening between Hayden's Fox Hills beds and Dakota group, remains to be shown. The fauna of the Tombigby sand sub-group is distinguished, as already stated, by the great number, both of individuals and species of *Inocerami*, and of remains of (chiefly *Selachian*) fishes, wherein it corresponds to Hayden's *Niobrara* division; its fossils have been partly named and described (somewhat imperfectly) by Tuomey.* According to Hayden's view of the New Jersey equivalents, the Rotten limestone would be represented by his Fort Pierre group.

The distinctive features of these several groups become less marked the farther we advance northward, even in Mississippi. Non-fossiliferous or lignitic clays and sands mingle with the marine strata; and become altogether predominant, it would seem, near the northern termination of the outcrop. †

West of the Mississippi, the continuous cretaceous outcrop does not extend as far northward as on the east side, by some 150 miles. Nor have the more ancient lignitiferous beds (Coffee group) been observed there, with certainty, within the limits of this map. The cretaceous area of Arkansas, according to Owen's description, falls almost altogether within the limits of the Rotten limestone group; and the same seems to be true of the greater part of the Cretaceous area of northern and middle Texas. Nevertheless, the series of isolated cretaceous outliers, which traverses Louisiana from the head of Lake Bisteneau in a S. S. E. direction, terminating probably in the great rock salt mass of Petite Anse, ‡ exhibit the main characteristics of the Ripley group; while deep borings have demonstrated the presence, for a thousand feet beneath, of the uniform Rotten limestone, such as it exists on the prairies of Mississippi and Alabama. I have elsewhere|| stated the stratigraphical as well as lithological reasons which induce me to consider both the rock-salt of Petite Anse, and the sulphur and gypsum deposits of Calcasieu, as lying within the limits of the cretaceous formations.

The data given by D. D. Owen seems to assign to the cretaceous

* Proceed. Philad. Acad.

† Fide Safford.

‡ Indicated on the map by the localities of Petite Anse, Chicot, Winfield, and Bisteneau.

|| This Journal, Nov., 1869, p. 345.

strata of Arkansas a dip S. or slightly W. of S. The outliers in Louisiana are too limited in extent for determinations of dip; but it can scarcely be doubted that they represent the summits of an (more or less interrupted) ancient ridge, a kind of "backbone" to the State of Louisiana, whose resistance to denudation has measurably influenced the nature and conformation of subsequent deposits. It is fair to presume that from this ridge the strata dip toward the axis of the Mississippi Valley, to meet those on the opposite side, and the depth at which these beds are found in the Calcasieu bores, seems to indicate, on the western slope, a southwesterly dip of three to four feet per mile. A glance at the map shows, nevertheless, that the general form of the northern Gulf shore was not materially influenced by the existence of this axis of elevation, which probably was marked merely by a series of disconnected islands in the early Tertiary sea that, after the emergence of the immense cretaceous area, already prefigured the present Gulf of Mexico.

It would be bootless to speculate at this early moment on the precise origin of the great rock-salt, gypsum and sulphur deposits. That the prominent event of the epoch—the emergence of an extensive sea-bottom—afforded abundant opportunity for the accumulation of the two former substances is obvious enough; it would seem to pre-suppose, however, a temporary or partial isolation at least from the general ocean, analogous to that which apparently occurred in later times. But as regards the sulphur, its ordinary co-occurrence with gypsum would hardly seem to afford a sufficient precedent for the present case, unless we assume the concurrent influence of volcanic or other "abyssodynamic" agencies.

Tertiary Period.

It will be perceived that during the Tertiary period the northern Gulf shore receded from its extreme northern limits in Southern Illinois and Missouri to a shore line, which, though running near the latitude of Baton Rouge, is not far from parallel to the present one, if we ignore the extreme projection of the Mississippi delta. This rapid filling-in of the embayment, no less than the character of the deposits, prove that the depth of water was not great, especially in the remoter portions where lignitic and lignito-gypseous deposits very sparingly interspersed with small marine beds (the remnants

of estuaries) from the predominant material. Similar alternations of materials occur, in fact, throughout the older Tertiary deposits of the Southwest; and hence the divisions marked off by difference of color on the map, as "lignitic" and "marine" Tertiary, respectively, must be taken very much *cum grano salis*. Except only in Southern Arkansas, few marine beds of any notable extent occur outside (i. e., north of) the limit of the area indicated as marine. But in Northern Louisiana where the dip is very slight, lignitiferous strata are altogether predominant on the surface, although the marine seem to underlie everywhere at no great depth, and in numerous localities crop out on the surface, forming, according to Hopkins, distinct beaches around some of the cretaceous outliers mentioned above.

So far, indeed, from considering the predominantly lignitiferous area as representing a period distinct from the older marine Tertiary, I have little doubt that the larger portion, if not all, of the beds I have heretofore designated as the Northern Lignitic (and Flatwoods clay) group (Lagrange and Porter's Creek groups of Safford) are the strict equivalents in time of the oldest marine beds observed in South Carolina and Alabama, and designated by Tuomey as the Buhrstone group ("Siliceous Claiborne" of my Miss. Report). The lithological continuity of the bed rock, of this group along the eastern border of the Tertiary, supported to some extent by paleontological evidence, strongly inclined me to this opinion ten years ago,* and it has received a strong confirmation from the latest observations of Dr. E. A. Smith, of the Miss. Geol. Survey, who has found the same rocks, substantially, continuous along the southern border of the lignitic area nearly to the Mississippi bluff. At the same time, Safford mentions the occurrence of similar beds on the border of the cretaceous in Tennessee. The inference is inevitable that no beds outcropping in the fork of these two marine branches can be anterior in time; the interconnection in fact is such as to render the supposition that there can be any material difference of age almost stratigraphically impossible. The exclusively lignitic character of the central portion must, therefore, be ascribed rather to the inaccessibility of that region to the waters of the sea during their deposition; perhaps in consequence of a change of level by

* Miss. Rep., 1860, §§ 162 and ff. 188, etc.

which the upper portion of the embayment, from about the mouth of the Arkansas to Cairo, was converted, for the time being, into a littoral Marsh.

In Arkansas, nevertheless, small marine beds are more liberally interspersed among the lignitic clays than is the case east of the Mississippi, and some of those mentioned by Owen as occurring in the territory here laid down as chiefly lignitic, are obviously more closely related to the celebrated Claiborne shell-bed than to the Buhrstone group. The latter group does not, in fact, appear characteristically developed anywhere west of the river, so far as I know, and the occurrence of somewhat extensive marine tertiary outliers on the cretaceous territory of Arkansas, as well as of lignitic beds on that of Texas (e. g., the Cross Timbers, as approximately laid down on the map), proves that although the deeper water of the embayment followed substantially the lines of trend shown on the map, yet there still existed at that time a connection, in a northwesterly direction, of the Gulf waters with those of the great interior basin of the West.

That this connection should not be uninterruptedly traceable at the present time is not surprising when we consider the shallowness of the connecting trough, as demonstrated by the inconsiderable thickness of the deposits, that of course greatly favored their removal by the subsequent events of the quarternary period. Nevertheless, enough seems to remain of these deposits to form a chain by which, with the aid of paleobotany, the equivalent, in time of the buhrstone and Claiborne marine groups, at least, can be determined among the fresh or brackish water beds of the interior. And with these as fixed horizons to start from, aided also by the flora of the subordinate lignite beds of the later (Jackson and Vicksburg) stages, we may hope to establish a comparative chronological scale through which the parallelisms with more distant regions, and later times, may be established even for the much discussed tertiary beds of the Great West.

My present purpose scarcely requires that I should more than allude to the detail of the later stages of the older tertiary, which I have not distinguished on the general map, in order not to obscure too much the general features. But a detailed map shows both the successive decrease in the width of their outcrops and the regularly diminishing convexity of the Gulf outline. I may also add that

as we recede from the vertex of the embayment, and eastward from its axis, there is a regular increase of deep-sea features, the lignitic facies becoming more and more subordinate ; yet, by its persistent recurrence seeming to intimate the occurrence, if not the oscillations, at least of local variations of depth ; dependant, perhaps, upon corresponding changes in river mouths. In Alabama, the lignitic feature is almost suppressed, the marine stages overlying each other directly, as a rule ; while west of the Mississippi it becomes more and more pronounced as we advance westward, so that all but the latest portion of the Jackson and most of the (much diminished) Vicksburg sea, here represented, appears to have been an intricate maze of everglades and shallow estuaries. That this state of things is intimately connected with the existence of the cretaceous "backbone" of Louisiana on one hand, and the decided southward dip of the same formation in Alabama on the other, can scarcely be doubted. At the same time let it be remembered that both east and west of the Mississippi, from the Chattahoochee to the Sabine, the older tertiary period closes with a decided prevalence, in the Vicksburg limestones, of the deep-sea character, and thus far the geological history of the Gulf does not exhibit any phenomena whose parallel may not, *mutatis mutandis*, be found on the coast of the Carolinas. Moreover, the transition from the oldest to the more modern (Vicksburg) fauna is so gradual, gaps existing in Alabama and Mississippi being completely filled by transition strata observed by Hopkins and myself in Louisiana, that any attempt at subdivision into eocene and "oligocene" must draw altogether artificial lines of demarcation.

But while on the Atlantic coast we meet, in the miocene and pliocene strata of Maryland, Virginia and the Carolinas, a gradual approximation to, and admixture of, modern marine forms, the Vicksburg epoch closes abruptly, so far as the Gulf of Mexico is concerned, the marine tertiary series. The geologically as well as agriculturally barren rocks of the Grand Gulf age lack all analogy outside of the Gulf basin, unless it be those of the Bad Lands of Nebraska, and especially the White River beds, to which they bear an extraordinary lithological (as well as, in some respects, stratigraphical) resemblance. However little this circumstance may prove as regards equivalence in time, we must, nevertheless, not forget that as the only representative of the geological period intervening

between the eocene and the drift on the Gulf shores, the Grand Gulf group almost necessarily embraces among its equivalents these very beds, and since Marsh has found the latter so much farther south than they were supposed to exist but a short time ago, it is not altogether impossible that more direct relations between the two may yet be proven. The Grand Gulf rocks form the highest ridges of Louisiana as well as of south Mississippi, falling off rather abruptly into the level prairie country of the marine tertiary. But even these ridges are capped by the ferruginous sandstone of the southern drift, which may have been instrumental not only in greatly diminishing their height, but also in sweeping away the links connecting them with the interior, as has unquestionably happened with regard to the older tertiary.

Be that as it may, whether actual connection existed or not, we can not escape the conclusion that analogous circumstances were required to produce analogous deposits. Foremost among these was *the exclusion of the sea*; nor can we account for the extreme scarcity of both animal and vegetable remains, that scarcely leaves us a hope of direct identification, unless upon the supposition that the water which deposited these beds was, take it altogether, too fresh for a salt-water fauna, yet too salt to admit of a fresh-water population. The solitary fragment of a turtle, recognized by Prof. Marsh, is all that has so far rewarded my many years' search for zoëgene fossils in this formation; and with the exception of a single locality in Mississippi, not yet fully explored, the prospect for recognizable fossil plants is about equally discouraging.

I confess that such absolute dearth of life rather staggers my belief; and my later observations on the deposits of the Port Hudson (Quaternary) beds have led me to conclude that in some degree this absence of life is only apparent; and that the *calcareous concretions*, so abundant in some of the clay strata of the formation, are but the substance of perhaps a very diversified fauna, whose calcareous portions have been thus transformed by maceration.* The calcareous ingredient, however, occurs only in the lower, clayey division of the series; and it is sufficiently remarkable that the fine sand and clay-stones of the upper division should have preserved no vestiges of either animal or vegetable life.

* This Jour., Jan., 1869, p. 81; Ibid., Nov., 1869, p. 338.

I do not see how, in view of the nature, thickness (about 250 feet) and wide distribution of this formation, the inference can be avoided that during the whole or a part of the interval between the Vicksburg and Drift ages, the Mexican Gulf was, by some means, isolated from the Atlantic ocean; or that at least its communication, perhaps across the still submerged peninsula of Florida, was so imperfect as to render the influx from the interior of the continent predominant over the original supply of sea-water. An upheaval of the northern borders of the Caribbean basin could easily accomplish this result, so long as the deep channels excavated by the Gulf stream in the strait of Yucatan, as well as those of Florida, did not yet exist. Too little is as yet known with accuracy regarding the geology of the nearer Antilles and Yucatan to determine whether they bear the marks of the event recorded by the Grand Gulf rocks on the northern shore of the basin. The observations of Mr. Gabb in Sto. Domingo, and of the English geologists in Jamaica, seem to indicate the existence there of marine Miocene and Pliocene tertiaries, which are altogether unrepresented in the waters of the Gulf. It has been suggested to me that beds of that character may be covered by the Grand Gulf and later beds of the Gulf coast. I willingly leave the onus of proof on that score to those who may think such an assumption desirable. But were this the case, the necessity for assuming the cutting off of the Gulf basin from the Atlantic, on account of the existence of the Grand Gulf rocks, would be none the less cogent; for I doubt whether any geologist, upon full consideration of the facts, would for a moment entertain the idea that like the "Northern Lignitic" of the older Tertiary, the Grand Gulf beds could be explained away as a mere littoral formation.

It is worthy of remark that while east of the Mississippi the peculiar sand and clay stones of this group are confined to the north-westerly portion of its area of occurrence, in Louisiana and Eastern Texas these rocks are altogether predominant, especially along the northern (or landward) border, the clays being subordinate.

Quaternary Beds.

The Grand Gulf rocks are almost everywhere immediately overlaid by the deposits of the stratified Drift or Orange Sand. Of course it overlies equally, as a rule, the more ancient formations (except

where, from causes not always readily imagined, it seems to have been subsequently removed) up to the limits of the Paleozoic. Beyond these, its occurrence is more or less localized in conformity with the larger valleys as observed by Safford in Middle and Eastern Tennessee, and by Tuomey and myself in Alabama. The same is true, apparently, of the larger channels of Texas. But within the limits of the Mississippi embayment it constitutes one huge delta-shaped mass, covering the entire Tertiary, and a large portion of the cretaceous area, to a depth varying from a few feet to over two hundred; on an average, perhaps between sixty and one hundred feet. Its predominant material is orange or reddish rounded sand, mostly ferruginous, of various degrees of induration, with subordinate beds of clay, and enormous gravel streams, evidently denoting ancient channels.* Its beds disappear beneath those of the Port Hudson age about concurrently with those of the Grand Gulf era; and consequently it can not well be independently represented on the map.

I have heretofore† shown that in order to explain the phenomena offered by the orange sand of Mississippi and Louisiana, it seems necessary to assume that prior to its deposition, the Gulf coast suffered an elevation to the extent of at least 450 feet above its present level, accompanied by a much greater uprising near the head of the waters. This elevation was succeeded, during the "Champlain" epoch, by a slow depression to at least twice that amount; and finally, during the Terrace epoch, a re-elevation to at least the extent of 450 feet took place. These figures are *minima*, if we regard the sea, or rather the Gulf level to have remained constant. But if, as seems necessary to assume, the Gulf was an isolated basin during Grand Gulf era, it might possibly have been elevated as a whole, and the zero point of the scale would be changed upward accordingly. The same, in a reverse direction, would be true if it could be assumed that the occurrence of the glacial epoch sensibly affected the general level of the ocean.

Be that as it may, the gravel is composed of Northern rocks, disposed in belts, of which one occupies the main axis of the embayment, while others mark outlets now closed, and the extensive

* Miss. Rep., 1860, this Jour., May, 1866, and other papers above referred to.

† This Jour., Nov. 1869, p. 335.

dannation and violent plowing up of the more ancient formations, clearly proves the occurrence of an immense flow of waters southward, which in the main channels moved pebbles of many pounds weight, while between these the depositions of the finer materials took place in the more quiet waters.

That these events were not of a local character; that, on the contrary, the phenomena observed in the Southern States are but the necessary consequence and complement of the Drift phenomena at the North, hardly requires discussion; but it is time that these facts were more generally understood and taken into account by American geologists, and that the Ohio should cease to be proclaimed the southern limit of the "Drift." A kind of settled prejudice on this point seems to have obscured the vision of more than one observer, in consequence whereof these deposits have been claimed, over and again, as portions of every formation existing in the Southwest, from the Carboniferous to the Bluff or Loess. Thus, in Northeastern Texas, they have been accounted of Tertiary age; the "Tertiary iron ores" of that region being precisely the same as those of the "Orange Sand" of Louisiana and Mississippi. The same is doubtless true, according to Safford, of the "Iron ore banks" of Tennessee, associated with the "Ore region gravel," precisely as is the case in Northeast Mississippi. In Arkansas, Crowley's ridge, a peculiarly characteristic Orange Sand ridge abutting on the Mississippi river at Helena, has been properly accounted of Quaternary age by D. D. Owen; but he associates it with the underlying lignitic beds, which it is impossible to distinguish from those cropping out directly opposite, on the Mississippi river bluff, in Mississippi and Tennessee, and which are directly traceable to their connection with the oldest Tertiary.

Tuomey first asserted the existence of the Southern Drift from Alabama to South Carolina, and conjectured its equivalence to the beds which underlie the cities of Richmond, Washington and Baltimore. I ascertained its wide prevalence in the States of Mississippi, Louisiana and Texas, and identified with it the superficial beds observed by Owen in Arkansas and Southwestern Kentucky, and by Safford in Tennessee. So close and cogent a connection was thus established between it and the "modified Drift" of the Northwest that I can no longer doubt its equivalence, whatever may be the

precise mode of origin assigned to it. The "Eastern gravel" streams observed by Safford in the mountains of Tennessee, and no less by Kerr in North Carolina, have their counterparts in the rivers of Texas and in the great pebble belts of the Mississippi embayment.

But it will be difficult to combine into a harmonious whole the widely differing observations and opinions of geologists on the vexed Drift question, unless some agreement is come to as to the precise meaning of the word. Let it be understood that the term *Drift*, *unqualified*, shall embrace all the deposits formed between the end of the Tertiary period and the beginning of the Champlain era of depression, when "drifting" ceased on this continent, outside of river channels, and that within this *Drift period* are embraced, whether as consecutive, or more or less simultaneous, but genetically distinct formations, the Glacier-drift, or moraines; the Iceberg (or "glacial") drift of the Northwest; and finally, the "modified," or rather *stratified Drift** of the Western, South Atlantic and Gulf States. It will then become possible, by a comparison of the really cognate phenomena, to trace more definitely the history, both general and local, of that turbulent period, without the confusion attending the use of a word to which each observer attaches, more or less, a different meaning.

If it be fully ascertained that in its lower course the Ohio is (sensibly) the extreme southern limit of the "glacial" Drift, while the stratified Drift is substantially continuous from the lakes to the Gulf shore, we have before us a definite problem as to the causes that can probably be solved by a close examination of the critical region, viz: the southern border of the Paleozoic in the Mississippi Valley. The general relations of the Drift to the Allegheny range are thus far, unfortunately, involved in great obscurity; yet a knowledge of these, especially on the western slope, seems almost a necessary condition precedent of any probable hypothesis regarding the history of the Drift period west and south. It is only thus that the possible existence of an ancient barrier across the Mississippi Valley, at the head of the embayment, may be either established or disproven.

*The name "modified Drift" would be altogether inapplicable to a large part of the Southern Drift, which is to a large extent "modified" Cretaceous and Tertiary material, only re-stratified, Drift-fashion.

The next formation laid down on the map is the Port Hudson group, of which, however, the outcropping *littoral* portion only is here represented. Properly speaking, it should be shown as occupying also most of the space colored as alluvial, since it underlies everywhere, not only the marine alluvium (and a portion of the Gulf itself), but also that of the Mississippi and its chief tributaries, at least as high up as Memphis, and on Red river, nearly if not quite up to Shreveport. It seems to exist equally in the valleys of other larger rivers tributary to the Gulf; notably in that of the Pascagoula, up to one hundred miles (in a direct line) from the coast.*

Having discussed this formation somewhat in detail in papers recently published, I will merely state that it embraces a group of partly littoral and estuarian, partly swamp, lagoon and fluvial deposits, whose thickness and location is manifestly dependent upon the topographical features of the continent, then (during the "Champlain" period) in progress of slow depression; as shown by the nature of the deposits, and the numerous superimposed generations of large cypress stumps, imbedded in laminated layers exhibiting the yearly fall of leaves. These beds overlies those of the Orange Sand or Stratified Drift, while themselves overlaid by, not only the river alluvium, but also by the Loess or Bluff silt or its equivalents; as well as where this is absent, by the Yellow Loam of the surface.

It would seem that here also, during the latter portion of the Drift period, most of the larger river channels were already impressed upon the surface, though not always coincident with the present immediate valley; as Newberry has observed in relation to some of the northern rivers. A depression of the land would gradually transform these channels into inlets filled with more or less stagnant fresh water down to a greater or less distance from the then existing coast line; and thus opportunity would be afforded for the formation of the swamp and lagoon deposits into which both the Mississippi and Red river have subsequently cut their channels. The banks of the Red river as well as, outside the present alluvial area, those of the many lakes and bayous which border that stream, exhibit strata absolutely identical in character with those observed

* See Miss. Rep., 1860, p. 153. The reference of the outcrop at Powe's to the Grand Gulf group is, I think, undoubtedly erroneous, and the same may be true of part or whole of the Dwyer's Ferry section, p. 154.

near the coast, yet, of course, totally different from either the alluvial deposits of the present time, or the adjoining tertiaries. The same holds true, more or less, of the Mississippi and its mighty "bayous." According to the observations of Dr. El. A. Smith in the Yazoo bottom, and my own in that of the Tensas, not only do the clays with calcareous concretions (as characteristic of the Port Hudson age as they are foreign to the alluvium of to-day), frequently crop out in the beds of the streams; but much of the best lands of the "buckshot" kind, now situated above overflow, have clearly been formed by simple disintegration of these strata, altogether independently of the river alluvium.

These results fully confirm, therefore, the statement made by General Humphreys,* that the Mississippi does not, as a rule, flow in a bed formed of its own deposits, but has excavated it in an older geological formation. Wells exceeding fifteen or twenty feet ordinarily strike these clays throughout the bottom, as they do in the delta; and the analogy has been completed by the repetition of the phenomena observed in driven wells at New Orleans,† at a point about fifty miles above Vicksburg (General Wade Hampton's plantation), where a tube well has furnished a copious flow of combustible gas undiminished for many months.

The swamp clays form, however, only the lower portion of the Port Hudson beds. Higher up, as shown at the Port Hudson bluff,‡ there lie yellow or whitish silts and "hard pans." These form, also, a level terrace some miles in width, bordering the Tensas bottom; while high above it, on the hill tops of Sicily Island, on the Ouachita, lie the remnants of the Loess formation, the main body of which has succumbed to the erosive influence of the Terrace epoch of elevation. It has, however, left a belt a few miles wide on the eastern side of the valley, as shown on the map.

It would thus seem that during the latter portion of the period of depression, the rate of sinking became, at times, too rapid to allow of the accumulation of swamp deposit. The indurate silts are mostly void of fossils of any kind, but are occasionally traversed by fluviatile beds with pebbles, driftwood, etc. Then there is a recurrence of the swamp deposits; then again silts; and finally, the cal-

* Rep. on the Mississippi river, p. 98 et al. †This Jour. vol. i, 1871, p. 345.

‡ See profile in this Jour., Jan., 1869.

careous, silty loam of the bluff formation, with its numerous terrestrial fossils and "Löss puppets," ends the deposits clearly referable to the epoch of depression.

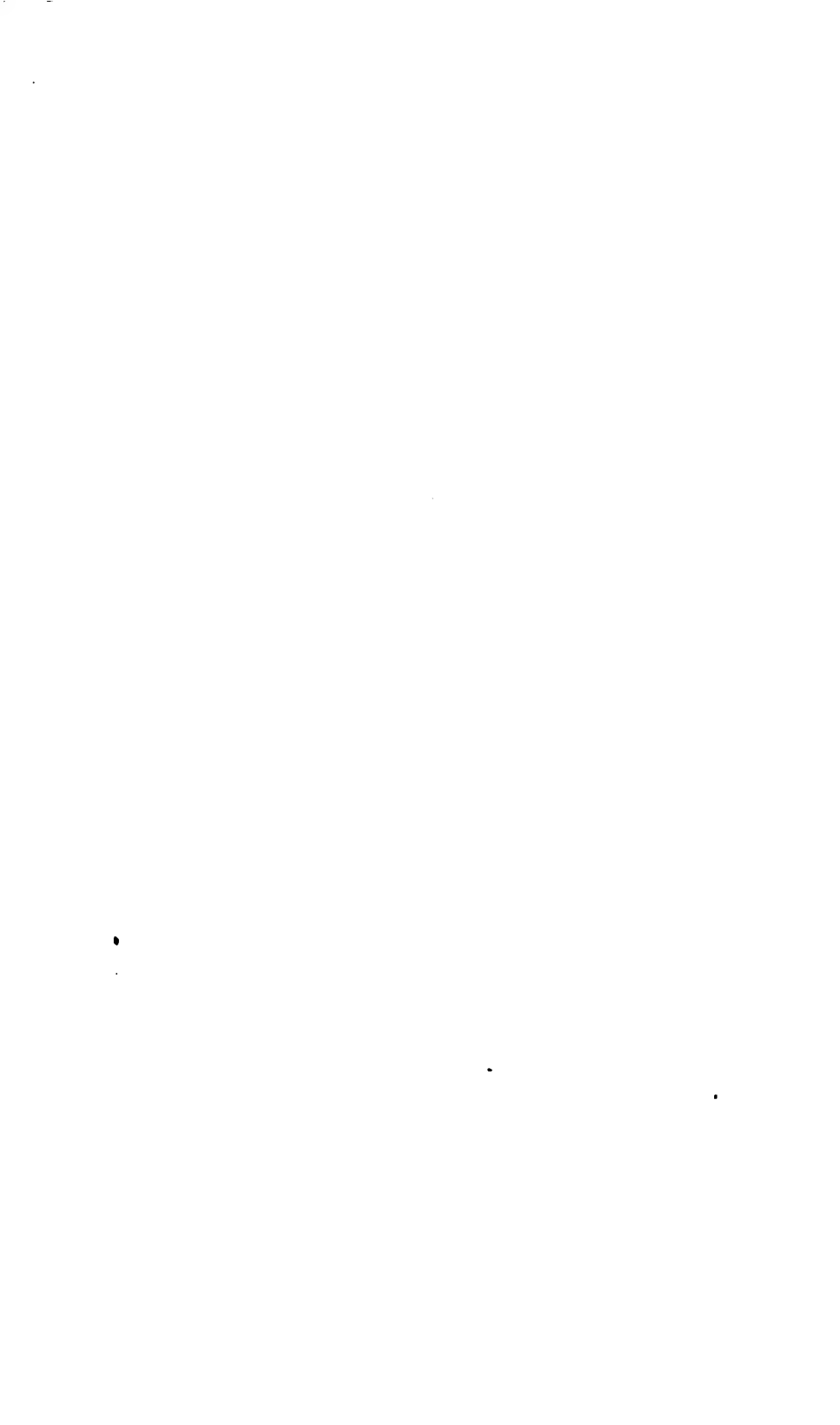
The Loess differs little from its equivalents farther north, save in being utterly devoid of stratification as well as of any fluviatile organisms. It is not easy to imagine the *modus operandi* by which a deposit of this kind, sometimes seventy feet thick and of dead uniformity from top to bottom, could be produced. Its equivalents farther north exhibit very distinctly the structure resulting when deposition takes place in (gently) flowing water; at the south it was probably substantially stagnant, save as regards the tidal flow. Perhaps the latter may serve to explain both the absence of fluviatile as well as marine life, and the uniform intermixture, without any semblance of arrangement, of material varying from the finest silt to pebbles half an inch in diameter. A strong tidal wave running up a deep inlet of this kind would naturally sweep away, in its periodical rushes, many members of the terrestrial fauna, whose remains are in a marked degree the more abundant the nearer we approach to the edge of the formation.

Overlying the Loess we find, wherever opportunity is afforded, a stratum of yellow loam or brick clay, which near the larger valleys is often as much as fifteen to twenty feet in thickness. It is altogether devoid of stratified structure, as well as of fossils, and forms the surface layer, and in most cases the subsoil of the Gulf States. If, as I am inclined to believe, its presence as a connected, though very undulating sheet, on all but the most elevated uplands of these States, necessitates the assumption of submergence, however brief, to the highest level at which it occurs; the changes of level heretofore alluded to would be shown to have exceeded by six hundred to seven hundred feet the estimate given above.

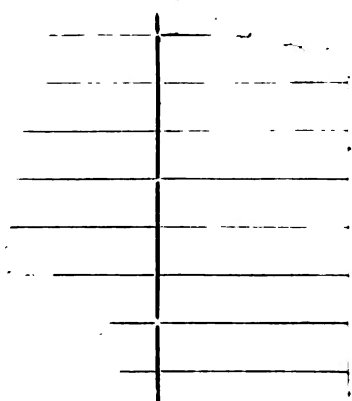
The succeeding (Terrace) epoch of elevation has not, so far as I am aware, left any marks in the way of beach-lines or terraces, unless the second bottoms or "hommocks" be accounted such. They, however, belong to a very modern epoch, for they occur on streams no larger than what is usually called a "creek," and are most marked on the smaller rivers, while apparently absent from those of the largest size, such as the Mississippi, Red and Arkansas rivers. The elevation at which on the very Gulf shore, we find

deposits of the Port Hudson age (one hundred and eighty feet at the Five Islands on Vermilion bay) shows, nevertheless, that a stupendous amount of erosion was accomplished during the time that the Mississippi occupied in scooping out its channel, to a depth which, even below the northern boundary of Louisiana, can not be estimated at less than five hundred feet.

As regards the modern epoch, I will merely remark that, while in the axis of the ancient embayment the Mississippi river, through the singular instrumentality of mudlumps upheaval, is rapidly pushing out the land into the Gulf waters, the latter are nevertheless gaining ground on almost the entire coast of Mississippi and Alabama; and the same is true of a portion of Vermilion bay. Yet on the whole, the coast of Louisiana, as well as that of Texas and Florida, is more than holding its own; and the shallowness of the water, even where encroachment does take place, will necessarily restrict the latter within narrow limits hereafter.







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